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ORIGINAL COMMUNICATIONS.

REPORT OF TWO INTERESTING CASES OF SKIN DISEASE: I. URTICARIA CHRONICA RECURRENS. II. DERMATITIS MEDICAMENTOSA.

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I.—CHRONIC RECURRENT URTICARIA.

The patient, a widow 37 years of age, was employed as housekeeper in one of the public institutions of this city when her case came under observation, on March 8, 1888. For the sake of brevity only those facts in the family history which have an evident relation to this case are reported.

The patient's father died when she was a child, but she knows, however, that he was subject to attacks which resemble her own, and that in his case the throat was at times the site of the lesion. She also knows that one of these attacks in which the throat was involved proved fatal. Her mother is 66 years old, and except occasional attacks, during the last few years, of what is called "neuralgia of the stomach and bowels," she has enjoyed excellent health. Two of her brothers have suffered with the same localized swellings for which she now seeks relief. One of them has been a much greater sufferer than she herself, and the other has had much lighter attacks. One brother and one sister have been free from the trouble.

In all cases in which the disease has occurred in the family it has frequently recurred, and has been obstinately chronic. The essential clinical features have been so similar in all of the cases that a description of this patient's case will answer for the others.

In regard to her health during childhood and adolesence, she says that she has had no complaint except the localized swellings. These, however, began as early in her life as she can remember, and she has never been free from them for any considerable period of time. Although closely and repeatedly questioned in regard to gastric troubles, she insists that she had none before her twentieth year.

Since that time, however, she has been troubled with gastric flatulence, which is at times very moderate, and others extreme. This begins soon after meals, and is more marked after the injestion of certain kinds of food. Uncooked apples produce the greatest disturbance, and even the smallest piece will bring on an attack. Associated with this flatulence there is regurgitation of both sour fluids and of food. The regurgitated food is always intensely sour to the taste, and it comes up in the throat at all hours after eating. She says that she has repeatedly detected food in

*Read before the Chicago Medical Society, July 2, 1888.

this way, which had been eaten twenty-four hours before its regurgitation.

For years her bowels have been obstinately constipated. She has the often vicious habit of waiting for a prompting, and frequently passes three days without defecation. She is not troubled with intestinal flatulence.

Menstruation began when she was thirteen and one-half years old and has presented no markedly unusual features. She was married in her twentieth year, has one son fifteen years old and has had no miscarriages. She, however, complains of an aching sensation in the sacral region, which is rather constantly present and always worse during the catamenial period. Two years ago she was told by a physician that her uterus was retroverted, and at his suggestion wore an internal pessary which she thinks diminished this sacral pain. She was, however, treated at the same time for stomach troubles, also with benefit.

She has a moderate amount of intermittent cutting pain in the left ovarian region, but has not observed that it bears any relation to her menstrual periods. She takes cold easily, has severe so-called head-colds, with a free secretion from the nasal and bronchial mucous membranes, but at other times is free from cough.

She is occasionally troubled with what she calles "a humor" on the inner surface of the thighs, but it is not now present, and she is not aware that it bears any relation to her other troubles.

What, in the opinion of the patient, constitutes her ailment, and what she seeks relief for is the occurrence of the localized swellings and their associated gastric disturbances.

The first symptom of one of these attacks is a sense of numbness and tingling in the part of the surface involved. The skin in this area begins to feel thick and hard, and it is swollen and moderately and uniformly red and hot. It becomes moderately œdematous, the itching and pain on pressure are very slight, and there are no white or yellowish-white areas over these tumor-like swellings at any time. When the area involved is easily inspected by the patient, as upon the extremities, she has noticed a streak of somewhat brighter red than that of the general surface which passes across it in the course of the lymphatics. This always terminates at the edges of the swelling.

The tumefaction proceeds steadily to the maximum, which is usually reached in twenty-four hours, and it is rather longer in disappearing than in developing. In all attacks the swelling is very marked, and in some its limit seems to be only that of the possible distensibility of the skin, which is frequently left covered with large blebs when the swelling subsides. For example, the hands become so swollen that the fingers are extended and widely separated, and the tips of the thumb and little finger cannot be brought into apposition. The face swells until the eyes are completely closed, and when the arms are attacked, sleeves which ordinarily are loose cannot be drawn over them. When the swelling begins upon the upper or fore arm it rarely extends beyond the elbow.

Any part of the body, or several parts at the same time, may be attacked, as both feet and ankles, or one foot and one hand. In the latter case a foot and hand of the same side are usually attacked. The patient has had mild, but never very severe, attacks in the pharynx.

She has a chronic gastric catarrh of mild severity, which, at the time of these attacks, is sometimes subject to violent exacerbations. So far as she has observed, the localized swellings precede the gastric symptoms. In severe attacks there is very great nausea with frequent emesis, and sharp colicky pain in the stomach. At these times the stomach is absolutely intolerant of both liquids and solids, and the vomited matters are intensely sour. This gastric intolerance continues, after severe paroxysms for several days. For a number of years the colicky pains in the stomach have

grown less severe. There is no intestinal disturbance at all in connection with these attacks.

While she is usually a light sleeper, during these attacks the patient is exceedingly somnolent and complains of great lassitude.

Until recent years the attacks have invariably occurred with the menstrual periods, but they have always, and do now occur at other times. Fatigue following hard physical exertion has always been a sure forerunner of an attack, and any work which requires much stooping is certain to bring one on. A smart blow upon any part of the body will produce at the point of traumatism a swelling which runs the usual course, without, however, the associated stomach troubles. She has never observed the phenomenon which gives rise to the term *urticaria factitia.*

Physical examination reveals a woman of strong, robust appearance, considerable adipose tissue, florid face, and fair hair. There is a mild subacute nasal catarrh present. The heart is slightly displaced upward. Sounds are normal. In the left infrascapular region there is some interrupted respiration, and the vesicular murmur over this entire lung is slightly less than over the other one. The stomach is distended with gas, but there is no evidence of gastric ectasia. The ascending and transverse divisions of the colon are moderately distended with gas.

The uterus is possibly retroverted a very little, is of the normal depth, and freely movable without pain. There is no tenderness at all about the pelvic viscera.

An examination of the urine was not thought necessary, and was not made.

The patient was told that the gastric catarrh was probably the cause of her troubles, and a hopeful prognosis given her.

The customary advice in regard to diet and the movements of the bowels was forcibly presented to her, and she was advised to take five drops of the dilute hydrochloric acid fifteen minutes before meals, three times daily, and to increase the dose gradually to ten drops. She was also requested to take Johnson & Johnson's papoid and soda tablets, one immediately after, and one more one hour after eating, three times daily. These tablets each contain one grain of papoid and two of bicarbonate of sodium.

On June 15, fourteen weeks after the first consultation, the patient was seen in an attack, the first of any severity since she began treatment. She says that for a week she has been acting as cook for the institution. A few days after she began cooking she began to have what she calls warning attacks of moderate swellings. To-day these have culminated. Both forearms and hands are very greatly swollen, but only very slightly, and on very deep and firm pressure, œdematous. The swollen surface is only moderately red, and the burning and itching is very slight. The stomach is moderately deranged. Menstruation is not present.

The patient says that since she began the treatment mentioned, until she began cooking, she was free from the local swellings, and also from the gastric troubles. The diagnosis seems reasonably certain, since, although the swellings resemble the erythemas in some respects, they very closely correspond with those in the case reported by Milton, and designated by Kapasi, as giant urticaria (Riesenurticaria). (Kapasi's P. u. T. der Hautkrankheiten, 2te Auflage, s. 307.)

II.—Dermatitis medicamentosa.

The patient in this case is a professor of Greek in one of the colleges of this State, and sends his own description of the case. It is graphic enough for the purpose of diagnosis, and is submitted in his own language.

He writes, "When otherwise in my usual excellent health, I took cold this week, and upon the doctor's prescription took one two-grain cinchonidia pill. In

three hours my knuckles and hands swelled up, and for forty-eight hours they itched and burned most intolerably, making sleep impossible during the first night. This is the third time within a year that this result has followed a dose of quinine or cinchonidia in my case, and I have not taken these drugs at other times."

The authors of works on diseases of the skin classify these cases somewhat differently. Thus, Eichhorst (Pathologie und Therapie, 1te Auflage, s. 230) refers to them under the heading *Erythema exudativum toxicum.* Kapasi (P. und T. der Hautkrankheiten, s. 310) places them among the urticarias. Hyde (Diseases of the Skin, 2d edition, p. 184) adopts the classification of the American Dermotalogical Association, which is the one employed in this report, and refers to Morrow's report of sixty cases (*N. Y. Med. Jour.*, March, 1880, p. 244) of dermatitis caused by the ingestion of cinchona and its alkaloids. He says, "The prevailing type is erythematous, the rash being a bright vivid hue, disappearing on pressure and resembling scarlatina."

Hyde and Eichhorst call attention to the fact that frequently in these cases the quantity of the article taken bears no relation to the violence of the clinical symptoms, and Kapasi says that experiments show that the results are independent of a knowledge, on the part of the patient, of the ingestion of the offending substance.

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BINOCULAR ASTIGMATISM (?)

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In a paper read in the Section on Ophthalmology, of the American Medical Association, by Dr. H. Culbertson, which is to be found in *The American Journal of Ophthalmology*, vol. v, 1888, p. 118, we may read as follows: "I have not infrequently encountered cases of astigmatism, in which, after having corrected the error in each eye separately, and on testing both eyes simultaneously in binocular vision, have found that vision proximum was not perfect, and, in order to attain normal vision near at hand in binocular sight, the angle denoting the axis of the cylindrical glass must be changed in one or both eyes. * * If the patient looks upon the floor, it will seem to incline to the right or left, and, on changing the axis of one or both cylinders, the surface will appear level."

The cases reported in illustration range, in age, from 18 to 34 years. He suggests the disturbance of the action of the extrinsic muscles in explanation.

This condition, which the writer calls "binocular astigmatism," is not uncommon, and, while I can recall no case in my experience so young as 18 years of age, many have come to my notice, after the age of presbyopia.

In such cases, vertical parallel lines appear to converge, generally toward the lower end, but often in the upward direction, and this remains true whether the object be near or at a distance. This peculiarity of vision with the correcting glasses is remarked as a curiosity; discomfort and annoyance are derived from the apparent slanting of the surface upon which he walks, one side of the pavement seeming to be higher than the other.

I have found, however, that even presbyopes, if they persist in wearing the cylindricals, as properly fitted with the aid of a mydriatic, will adjust themselves to the altered condition, and, with the lenses, find greatest comfort.

Dr. Culbertson's theory in explanation may be the correct one, but one of two others has seemed to me more satisfatory.

The relation of apparent *size* and *distance* is an individual experience. To a myope, all objects seen at all are larger and less clearly defined than to an emmetrope. The myope is accustomed to see only objects near to him with distinctness; therefore a distant object *is* near, and, when his

myopia is first corrected, all objects seem to be nearer to him than is natural; the floor rises, and stairways are not exactly safe, because of this impression. To a hyperope, on the other hand, objects at a given distance appear smaller than to an emmetrope, and a + lens = H increases the apparent size of everything, and the distance therefore seems increased.

When either a myope, or a hyperope has worn a correcting glass long and constantly enough for adjustment he loses these false impressions and has comfortable vision. The occasional and judicious use of homatropine shortens greatly this period in hyperopes, astigmatics, and aniso-metropes; and for this reason, I have concluded that the cause of the difficulty might be found in the accommodation.

The experience of myopes, however, has led me to suspect a more central locus.

To illustrate; if an astigmatic sees a level floor inclining from right to left, an experience of years teaching him all the while that it *is* level, he finally accepts as a fact that all level surfaces *appear* to incline from right to left, and his mind habitually and unconsciously makes allowance for this. After he has acquired this habit he is enabled, by a correcting glass, to see level surfaces as they actually exist. As his cerebration has, in this particular, been unconscious, he continues unconsciously to make allowance, and the level pavement *appears* to incline from left to right proportionately. This habit is in time corrected by experience, under the new and true conditions.

This explanation seems to me to be the true one, but it is possible, though not perfectly clear to me, that the power of accommodation may contribute to this effect, because of our unconscious striving for definition of images.

The influence of the extrinsic muscles must be slight.

I beg to offer a recent case in illustration. March 27, 1888, Senator ————, æt. 60. For the past ten days he has had an inflammation of his lids. He gives no history of a former attack, but an examination discloses a blepharitis marginalis, and numerous inflamed and hypertrophied papillæ on the conjuntival surface of both upper and lower lids. Two of the hypertrophied papillæ (one on the right upper and the other on the right lower lid) suppurated and were opened on the conjunctival surface.

With each eye, $V = \frac{20}{L}$.

Under full mydriasis,

V. R. $= \frac{20}{L}$: with — 1. D s. V. R. $= \frac{20}{xx}$.

V. L. $= \frac{20}{C}$: with — 2. D cy. @90°, V. L. $= \frac{20}{xx}$.

After recovery from the effect of the mydriatic, with the use of the correcting glasses, vertical parallel lines appeared to converge from above downward. After a few weeks' use of the lenses, the distortion had grown markedly less, and, as usual, has probably disappeared. As he would not wear lenses on the street, I heard no complaint of the surface of the pavement; but, from numerous other experiences, I have no doubt it would have given the accustomed impression.

It is my practice, after assuring myself of the correctness of the lenses, to insist upon their constant use for a time, with the certainty that the ocular, or mental, readjustment, whichever it is, will take place.

Until some other, and more conclusive, evidence is offered, adverse to the theory of a mental process, this is to be preferred to one based upon the supposed inco-ordination of the extrinsic muscles, because any change of habit in muscular action is a result only of a very long process of training. On the contrary, the brain is capable of, and accustomed to, allowing for sudden changes in position of the body, and promptly adapts itself to its surroundings, in order to maintain control.

EDITORIALS.

KOLPO-URETERO-CYSTOTOMY, IRRIGATION AND DRAINAGE IN CHRONIC PYELITIS.

At the meeting of the Ninth International Medical Congress Dr. Nathan Bozeman, of New York, read a paper entitled "The Gradual Preparatory Treatment of the Complications of Urinary and Fæcal Fistulæ in Women, including a Special Consideration of the Treatment of Pyelitis by a new Method, and the Prevention of the Evils of Incontinence of Urine by a new System of Drainage." In this paper he reported the history of a case of pyelitis that occurred as a complication of a large urinary fistula involving the urethra, uterus, and both ureters, and spoke of its successful treatment by irrigation of the pelvis of the kidney. He briefly mentioned also the extension of the method to the treatment of a case of pyelitis not associated with a fistulous opening in the bladder, the orifice of the ureter having been exposed by an operation that he named kolpo-uretero-cystotomy. Dr. Bozeman now reports his second case in full, the treatment of it having been completed, in the *American Journal of the Medical Sciences* for March and April, adding also an analysis of the first case.

In the paper read at the meeting of the Congress he showed that in the treatment of cases of urinary fistula by the use of intra-vaginal drainage, by means of an instrument that he devised, he was able to conduct away the urine from the bladder, and to prevent its contact with the vaginal mucous membrane and the integument of the external genitals and surrounding parts. The essential part of the instrument is a hard-rubber or metal drain that fits in the vagina and is connected by a soft-rubber bag or urinal attached to the thigh near the knee. Its upper surface, corresponding with the vesico-vaginal septum, is grooved or made concave and perforated by a number of small openings in such a manner that one of them must come in apposition with the fistula. The vaginal mucous membrane clings closely to the instrument and blocks up all the openings on its upper surface except those opposite the fistula. The margins of the fistula are accurately applied to the instrument, and the defect in the septum is supplied by its upper surface. In this way the urine is drained directly from the bladder, and does not come in contact with the vaginal mucous membrane. The term intra-vaginal drainage, therefore, merely suggests the use of an instrument placed within the vagina in order to conduct away the urine from the bladder

The operation on the second case was as follows: The patient was anæsthetized, placed on the left side, and the anterior wall of the vagina exposed and made tense by means of Bozeman's dilating speculum and perineal elevator. The point of a narrow-bladed scalpel, mounted on a long handle, was made to enter the mucous membrane on the right side, about one inch and a quarter below the cervix uteri, and three-quarters of an inch away from the median line, and a circular piece of the septum was removed, forming an opening into the bladder large enough to admit the index finger. The orifice of the ureter was then discovered, and bloody urine was issuing from it. The vesical and vaginal mucous membranes were brought together at the border of the opening with a continuous catgut suture. A No. 8 French olive-tip catheter was then passed into the ureter and entered the pelvis of the kidney without meeting any obstruction. Warm water was now injected through the catheter by means of a small piston syringe. About a drachm at a time was forced into the pelvis of the kidney and then allowed to escape. This irrigation was continued till the fluid that came away was free from blood. The catheter was then held in place for thirty-six hours, and the urine was collected as it flowed directly from the pelvis of the kidney. Examination showed it to be alkaline, and to contain a large proportion of blood, pus, and crystals of

triple phosphates, with great numbers of bacteria. A week later the catheter was again introduced and allowed to remain its for twenty-four hours. In both instances continued presence caused nausea and vomiting, and a good deal of paroxysmal pain.

On the day following the operation a drainage instrument was introduced into the vagina, and the uretero-vesico-urethral drainage support was used as long as the patient was confined to the bed. Afterward the utero-vesical form was used, since it does not interfere with the sitting posture. The drainage was satisfactory from the first, and the instrument in the vagina caused no inconvenience. It was found that the menstrual blood was drained directly from the uterus, and the fundus, which was retroverted and prolapsed, was restored to its normal position by the pressure of the rounded upper extremity of the drainage support.

The vesical and vaginal mucous membranes having united at the border of the opening by first intention, ten days after the operation systematic treatment of the pyelitis was begun. Every day a flexible olive-tip catheter was passed into the ureter, and the pelvis of the kidney was irrigated with a warm solution of bichloride of mercury, 1: 20,000. A rubber tube was attached to the lower extremity of the catheter, in order to lengthen the instrument, and to connect it to the nozzle of the syringe more readily. A small hard-rubber syringe was used. At first only about one drachm was injected at a time; afterwards it was found that the best guide to the quantity of fluid to be injected was the sensations of the patient. Whenever the pelvis of the kidney was distended a peculiar and characteristic pain was felt; the fluid was then allowed to escape, and the injection repeated until the washings were colorless and free from sediment. As the treatment progressed the size of the catheter used was gradually increased to a No. 13, and it is probable that the ureter could have been still further dilated.

Since the ureter has a spiral course the catheter rotated on a longitudinal axis as it entered, and a given point on its surface, indicated by a mark, was seen to describe a complete circle. As the catheter passed toward the pelvis of the kidney this point moved from right to left; and when the instrument was withdrawn the rotation was in the opposite direction. In the left ureter the direction of rotation is reversed. When the catheter was passed the urine in the pelvis of the kidney flowed out, and the quantity thus removed was found to be variable; if the patient had been standing or walking immediately before the introduction of the catheter in the left lateral prone position, there was little or no accumulation of urine in the renal pelvis; if she had been lying down a considerable quantity was removed, and at the beginning of treatment this was sometimes as much as fifteen drachms. The capacity of the pelvis was found to be 21 drachms at first, but was at last diminished to 5 drachms, which is probably about normal.

During the course of the treatment a flexible renal sound was constructed, made of a delicate ribbon of steel twisted into a cylindrical form of a suitable size and length. With this the ureter and pelvis of the kidney could be explored more easily than with the catheter, and it would more easily detect the presence of a renal calculus than the catheter.

At the end of three weeks the urine was clear and deposited no sediment. About six weeks after irrigation of the pelvis of the kidney was begun the following experiment was made: The bladder was douched. The catheter was then passed into the right ureter, and a drainage instrument was placed in the vagina. The urine from the left kidney, as it was secreted, flowed into the bladder and was collected by a drain; that from the catheter was received in a vessel placed between the thighs. In this way it was possible to collect at the same time and in separate vessels the urine secreted by each kidney. At the end of two

hours three ounces of urine had been collected from the left kidney, and four ounces by catheter from the right. The result of the examination of the two specimens showed that the pelvis of the right kidney had returned to a normal condition. The urine from the left kidney was straw colored, neutral, sp. gr. 1010, no albumen, no sediment; that from the right kidney was amber colored, acid, sp. gr. 1020, with an occasional leucocyte.

As the urine returned to a normal condition the symptoms improved, the pain in the right lumbar region ceased entirely, and the patient gained appetite, flesh, and strength. Haste in closing the opening in the bladder was considered unnecessary, because by the use of the utero-vesical drainage support all discomfort from incontinence of urine was prevented. The patient was therefore sent home, and told to return for the operation when her health and strength were entirely restored. Some weeks after her return home she wrote: "The drainage works perfectly; there is no escape of urine except sometimes a little while lying down. I have not suffered any pain in the kidney. The instrument keeps the uterus in position. I have gained 19 pounds in three months—that is, since the operation. I can either ride or walk; neither gives me any uneasiness." Three months after this she returned for the closure of the artificial fistula, having gained 25 pounds in weight, and become strong and well. The vagina and vulva were in a healthy condition, and almost all the urine had been drained from the bladder and the normal position of the uterus maintained by the drainage support.

On the day of her return a No. 13 (French) catheter was passed into the pelvis of the kidney and allowed to remain four hours. The urine drawn off was entirely free from pus, but as the ureter had contracted during the absence of the patient the large size of the catheter set up a mild attack of cystitis, ureteritis, and pyelitis, and the operation for the closure of the fistula was delayed for four weeks, until observation of the patient gave assurance of the subsidence of inflammation.

The fistula was closed with the button-interrupted suture. The line of co-aptation measured about one and a half inch, and four silver sutures were used. The second and third wires were passed half an inch apart, so as to avoid all danger of obstructing the orifice of the ureter. The sutures were left long, and their ends were inclosed in a rubber tube. A No. 4 soft English catheter was placed in the bladder and secured in place by tying it to wires opposite the meatus urinarius. This operation was followed during the first two or three days by a good deal of vesical tenesmus. The catheter was removed at the end of 12 hours. The urine was drawn and the bladder irrigated every six hours with a weak solution of boracic acid. Perfect union occurred, and the sutures were removed at the end of seven days; the patient was allowed to get out of bed a week later.

Examination during the week following the operation showed that the fundus of the uterus had returned to its original position against the rectum, and the cervix became displaced toward the right, causing some distortion of the vesico-vaginal septum, and possibly some obstruction of the ureter. To correct the displacement and guard against cystitis and pyelitis the vagina was columned with dry cotton. After a few applications of the column the utero-vaginal support was introduced, but it occurred to Dr. Bozeman that the use of the drainage support, which had held the uterus in position while the fistula remained open, might be continued. It was found that the instrument was as efficient a uterine support as ever. It held the uterus in position perfectly. It was found that when the openings in its cribriform surface were closed the instrument tended to slip down, and was no longer useful for this purpose.

Five weeks after the closure of the fis-

tula the patient looked and felt perfectly well; the vesical and renal systems had all disappeared, and the urine was normal. She was continued under observation in order to determine whether the correction of the uterine displacement would be permanent.

Dr. Bozeman submits the following summary of what he conceives to be the most important results that follow the employment of this new method in the treatment of pyelitis:

1. An artificial fistula at one of the ureteral angles of the trigone of the bladder, the result of the operation of kolpo-uretero-cystotomy, furnishes an opportunity for the observance and clinical study of diseases of the bladder, ureters, pelves, and kidneys, afforded by no other means. In consequence of the spiral course of the ureter only a very flexible instrument can be safely passed into the pelvis of the kidney; and in order to discover the ureteral orifice by probing the bladder a moderately stiff instrument must be used. When an opening in the bladder has been made, the orifice of the ureter can be exposed to view, and the most flexible instrument guided into it.

2. The means of easy access to the bladder, ureter, and pelvis of the kidney, afforded by the operation of kolpo-uretero-cystotomy, are even more important for treatment than for diagnosis. Irrigation of the pelvis of the kidney removes pus and ammoniacal urine from contact with its mucuous membrane. Gradual dilatation of the ureter overcomes narrowing of the duct at its orifice or along its course; the escape of irritant substance from the pelvis is thus made more easy, and the descent of a calculus impacted in the ureter would be facilitated. Physiological rest and perfect drainage of the bladder, ureters, and pelvis tend to cause the subsidence of inflammation of their lining membrane, and atrophy of their thickened muscular coats. In consequence of the removal of the pressure of the urine, an enlarged bladder or a dilatated pelvis returns to its normal size.

3. By this new method of treatment the patient is exposed to but little danger in comparison to that involved in the grave operations of neprotomy and nephrectomy. These major operations are seldom done except at a late period, when extensive renal disease has occurred, and, if the case does not terminate fatally, result in partial or complete loss of one or two vital organs. The complicating cystitis is not treated by them, and causes that may afterward lead to disease of the remaining kidney are neglected. Congenital absence of one kidney, coincident disease of both, and pyelitis on both sides, are contra-indications to the performance of the operation of nephrectomy, but not to the employment of this new method of treatment. Kolpo-uretero-cystotomy should be done early. By the operation, and the subsequent treatment, the associated lesions of the bladder will be cured, and in many cases all the urinary organs restored to a normal condition. In other cases, by the accurate means of diagnosis afforded by the opening into the bladder, allowing the use of catheter and renal sound, a stone in the pelvis of the kidney itself, or some other condition not susceptible of cure by this method of treatment, may be discovered. Nephrotomy or nephrectomy may then be resorted to with greater confidence, and an increased probability of success. The patient is relieved meanwhile from the distress resulting from the complicating cystitis and pyelitis. The vesicle and pelvic irritability and tenesmus no longer causing loss of sleep, her general condition can be improved, and she is better prepared to undergo a serious operation.

4. Intravaginal drainage prevents the evil consequences of incontinence of urine, and perfects the method by removing the chief objections to its employment.

THE LATE EMPEROR OF GERMANY.

The question as to the nature of the disease which has caused the death of the late emperor of Germany is, if we may judge by the brief notes received by the secular press by cable, answered by the autopsy.

This statement of the post-mortem examination substantiates the opinion which has been held by the greater portion of those members of the profession best qualified to judge of the case. The course, and in general the history, of the case does not materially differ from that of most cases of cancer of the larynx. The interest of this particular case consists in the fact that the patient was the heir to the throne of one of the greatest empires of Europe.

There will always in this instance, as there must in all other similar cases, remain a doubt as to one point, namely, the bearing of the treatment upon the duration of life. The early recognition of the nature of the disease could in no way solve that question. In too many cases an operation has been followed by a speedy dissolution. The average duration of life in general has been quite as long, or perhaps we may say longer without any operation except that of tracheotomy, as when there has been made an effort to extirpate the larynx, or even a portion of it. On the other hand the effort to remove the larynx, or the diseased portion of it, has evidently in many instances shortened life. Whether in this case such would have been the result, it is, of course, impossible to know. All things considered it is quite certain that the management by Mackenzie and his aids materially prolonged the life of the illustrious sufferer and secured for him the maximum of comfort and ability to continue to the very last in the discharge of the functions of his high estate.

The position of the German profession toward the eminent English surgeon is a little uncertain. The secular press has represented this attitude as one of hostility, of bitter criticism. The German journals which we have been able to consult hardly justify such a statement. The most eminent of the profession in Germany have not been quite certain as to the nature of the trouble. The examination of the portions removed by Mackenzie by the master of pathology not only among the Germans themselves, but one recognized by the whole learned world as competent, if any one can be, to decide the case, left it in doubt whether the growth was a cancer or a non-malignant tumor. Of course, the failure to find evidence of malignancy did not in the mind of any one exclude the possibility of malignancy, but this fact raised the hope that the condition might not be cancer, and justified treatment directed to the amelioration of the symptoms and calculated to prolong life.

The charge has been made that Mackenzie recognized at once the character of the disease, but gave a false diagnosis and prognosis for political reasons and under the influence of the princess, the wife of the patient. No one who has had the privilege of knowing the celebrated specialist who has been placed in this trying position will for a moment believe that he in any way departed from the line of moral or professional obligation, even to serve a throne. The charge that he had misstated the facts does not seem to be borne out even by the admitted history of the case. He simply recognized the truth that there was a doubt as to the nature of the malady, and hoped that the case was not malignant. Had the operation been performed, as contemplated by the German attendants when Mackenzie was called, no one, of course, can say that the emperor would not now be living, but it is much more probable that he would have been dead months before, and that he would never have come to the throne.

SOCIETY REPORTS.

CHICAGO PATHOLOGICAL SOCIETY.

JUNE MEETING.

President I. N. Danforth, in the chair.

Dr. Albert B. Strong read a paper on "CALCULI IN THE BLADDER OR URETHRA OF CHILDREN."

It is said that in those regions of Germany where sour wine is freely consumed the drinkers mix the beverage with an alkali to guard against kidney colic. Dr. E. Powell reports the case of a physician who invariably suffers from renal colic within the next twenty-four hours after drinking a glass of sour wine. One or two days afterward he always passes from the urethra a uric acid calculus as long as a grain of wheat.

The author has during the past fifteen years seen seventeen cases of calculi in children varying in age from one to eight years. Of these cases three were operated upon by the left lateral perineal section and the stone removed. In ten cases the stone was passed spontaneously, or with assistance, through the urethra. In four cases an operation was refused, and the patients died from uræmia.

Of these cases two were children of German and fifteen of Polish parents. This large proportion of stone cases occurring among children of one nationality excited very great interest, and the reason was accordingly eagerly sought for. The large Polish population of the northwestern portion of this city furnished the cases. In the course of the investigations many other cases of calculi in the bladder or urethra were heard of, but not personally seen. These people are prolific, and it is not at all uncommon to see a family of eight or ten children. As a rule the patients are very poor and their sanitary surroundings most unfavorable.

Among these people, as a rule, the mother nurses the baby until it is ten or twelve months of age, when pregnancy interrupts lactation, and the child subsequently subsists largely upon sausage, put up in small gut-cases. This article is cheap, easily prepared, and very nutritious, and the little one sucks and munches his food several times a day. Carpenter says: "On a full meat diet the normal daily excretion of ten grains of uric acid is increased to 32.5 grains." Uric acid forms the nucleus of fully 95 per centum of all urinary calculi. Therefore in these cases reported it seems reasonable to infer that meat diet is the most potent etiological factor. In these cases no examination was made for the nucleus of the stones which were exhibited. The smallest weighed two grains, and was from a child twenty-two months of age. The next in size weighed eight grains, and was from a child twenty-seven months old. The largest weighed three and one half drachms, and was removed from a boy eight years of age.

Two points in the history of the latter case are interesting:

(1) The renal origin of the stone, and

(2) The years of dribbling of urine which followed the operation.

The mother gives the following history:

"The child was perfectly well up to three years of age, when he had a mild attack of measles. On the third day of the eruption the boy suddenly sprang out of bed, complaining of great pain in the lower part of the abdomen. He screamed and ran about the room, and continually crying out, 'Oh, my belly!' This severe attack lasted an hour, and milder attacks were of frequent occurrence for the next four days, during which time he frequently pulled at his penis. His urine came in drops, and he appeared to suffer much pain in voiding it. On the fourth day the pain and habit of pulling at the penis suddenly disappeared, and he remained in perfect health for the subsequent six months, when he was seized with a second attack, similar to the first, which also lasted three or four days. Again the trouble disappeared as suddenly as it had appeared. He was then perfectly well for four months, when a third attack seized

him. During the last three years these attacks have been of frequent occurrence, while the habit of pulling at the penis continued more or less constantly; for half an hour after urinating the child would scream with pain. Ten days before the operation here reported he was seized with excruciating pain which has been paroxysmal ever since. During the paroxysm the child was perfectly uncontrollable, throwing his body about in violent contortions. This condition terminated in a spasm on the tenth day. During the ten days the patient complained of pain shooting from the right lumbar region downward toward the bladder. He also suffered great pain at the head of the penis."

There are a few points which admit of special mention in this case. The repeated attacks of renal colic demonstrate the origin of the stone. There was no history of excessive meat diet. Again, the patient had been seen within the last day or two prior to this report, and the author learned that for the first five years succeeding the operation there was constant dribbling of urine during the daytime. Yet during the next three years the condition was present only when the boy caught cold. Since then he has been perfectly well in this respect. He is now a large, well-developed boy, following the laborious work of a molder.

This dribbling of urine after perineal lithotomy is not alone confined to this case. Other operators say that it is not at all uncommon. The text-books consulted are, however, silent on this point. In giving a prognosis in these cases, this possible condition should not be forgotten.

Concerning perineal section in children, there are a few peculiarities dependent upon the different anatomical relations and nature of the infantile bladder. Such a bladder, aside from its small size, is differently situated in the pelvis. It is much higher, so that the distance from the skin to the base of the organ is relatively greater than in the adult. As a result of this anatomical peculiarity, in opening the bladder the handle of the knife must be depressed more than in the adult, otherwise there is danger of cutting into the space between this viscus and the rectum.

Again, the bulb of the urethra and the prostate gland are so rudimentary that neither practically exists, hence there is little danger of wounding the bulb or its artery. Again, the recto-vesicle fold of peritoneum is much higher than in the adult, and consequently there is but little danger of opening the peritoneal cavity should the incision be extended back unduly far.

The advice given in the recent edition of the Encyclopedia of Surgery, to cut freely through the prostate and base of the bladder should be condemned.

Dr. Venn extracts urethral calculi when they are lodged in the canal anterior to the perineum by an ingenious method. He distends the canal in front of the obstruction with oil, and then the stone is easily manipulated forward, and, if necessary, removed with the forceps.

Dr. Strong had recently removed a stone from a boy seventeen years of age, which weighed one ounce and a half.

Dr. Skeer reported a case of stone which had lodged in the prostate gland. It gave him a great deal of trouble, and was three-quarters of an inch long and half an inch in diameter. He also mentioned the case of a lady who passed a stone from the urethra as large as the seed of a prune.

Professor E. Root asked whether the patients were troubled with nocturnal incontinence, to which Dr. Strong replied that all of them were. Incontinence was an early symptom in most of the cases, and the next most prominent one was pulling at the penis.

Dr. Strong had never met with calculi in girls, but had read of such cases..

Professor Silva knew of a lady, married, 30 to 35 years of age, who had spontaneously passed a calculus, after intense suffering, as large as the largest exhibited by Dr. Strong. It was pear-shaped. A peculiarity

in connection with the case was that at the time she was considered to be in labor.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

REGULAR MEETING, FRIDAY, APRIL 20, 1888.

The President, Henry T. Byford, M.D., in the chair.

THE PRESIDENT EXHIBITED A UTERUS REMOVED PER VAGINAM FOR FIBROIDS.

He said: I have here a uterus about double the normal size that I removed through the vagina on account of fibroid tumors. They had produced incurable stenosis, and were accompanied by almost constant pain of increasing severity. The patient, Florence Jones, is 42 years old, and has had four children, the youngest 20 years old. She is obliged to wash for a living, has been getting worse for two years, and during the past year has had to stop work every two or three days on account of suffering referred to the pelvis. She has been under treatment by prominent gynæcologists, both for the stenosis and for the fibroid tumors, without avail.

As nothing short of a severe cutting operation would have relieved the stenosis, I considered that vaginal hysterectomy would be but little less dangerous, and would give permanent and complete relief instead of temporary and partial. It would remove the tumors with but little danger and thus forestall a possible abdominal hysterectomy or supra-vaginal amputation with the terrors so often connected with them. You will notice that the whole uterus is enlarged and hardened, and that the cervix would form a bad stump in case of such amputation. Two of the tumors are near the serous surface, and one just under the mucous membrane. The stenosis extends half an inch above and a little below the internal os and is of cicatricial hardness. The tumors are each about the size of a hickory-nut.

As would be expected, the patient has not had a bad symptom, and will in two or three weeks be able to resume her place at the washtub.

The President said, in reply to questions, that the operation was performed five weeks ago, and the patient was ready to leave the hospital. The ovaries were not removed, as they were not diseased and were undergoing senile atrophy.

Professor James H. Etheridge reported the following CASE OF CÆSAREAN SECTION.

He said: I have not had time to commit to paper a description of this case, but I can give the salient points.

On the 21st of February, I was summoned to see a patient; I was notified that I was wanted to perform Cæsarean section; that there was a fluctuating tumor in the pelvis. I saw the patient about half-past ten in the morning, and upon examination I found the whole pelvis blocked up by a fluctuating tumor containing a hard substance. I could feel nothing else. The index finger could pass up between the symphysis pubis and the tumor, which seemed to be in the posterior part of the pelvis. I could pass one finger easily, but I could not get two in, and with the utmost pressure of my hand upwards I could not reach the cervix.

The patient was an Irishwoman, 32 years of age, of nervous temperament, and had borne three children. The first labor was normal. The second labor was terminated by instrumental delivery with some difficulty, and the third one, two and a half years ago, was accomplished with the greatest difficulty, with forceps. There was an obstruction to delivery found at that time, but what it was was not determined. The next thing known of her was she fell in labor, and the attending physician upon examination detected what he communicated to me. I could not determine what the fluctuating tumor was, and the idea of puncturing it occurred to me upon my first examination, but fearing that I would open a pus cavity that would discharge its contents during the lying-in

period, I was deterred from doing it. After a hurried consultation it was decided that the patient should be taken to the Presbyterian Hospital. She reached the hospital at a quarter-past one. The attending physician went with her in a carriage and administered chloroform *in transitu*. About half-past four she was etherized and the initial incision made from above the umbilicus, perhaps an inch and a half, down to the probable location of the reflexion of the peritoneum upon the uterus. The abdomen was very large, and in making the first incision the edge of the scalpel went through the abdomninal wall and into the uterus itself. I supposed I was making a cutaneous incision, but the wall was so thin that the knife went through into the uterus. The steps of the operation after that were very simple. The incision was enlarged to about six inches, perhaps seven. The amniotic sac was not broken, and two or three sweeps of the knife carried it through the uterine wall and into the bag of waters, and there was a tremendous welling up, the water flowing out over the patient, the table, and everything else. Dr. Parkes was my vis-á-vis, and he immediately pressed the uterus laterally with the view of forcing the child up through the opening, and it came up breach first. There was no attempt of the uterus to contract. The child was easily taken out in a second of time, and two snap forceps put upon the cord, which was divided and the child given to the nurse. There was very copious hæmorrhage, though not alarming; the walls on both sides seemed to be springs of blood. The contraction of the uterus was secured by the pressure over each side, no attempt being made to turn the uterus out of the cavity. The placenta was easily secured; the peeling off of the whole of it from the inside of the uterus was speedily and easily and cleanly accomplished. Uterine contractions failed to follow immediately. A hypodermic injection of ergot was given and snap forceps put on bleeding vessels until the hæmorrhage was controlled. The uterus was manipulated and pinched and every effort made to invite nature to set up contraction, which, after a space of seven or eight minutes, came on feebly, not vigorously.

After the uterus was thoroughly emptied, I passed my hand down into the cervix to ascertain if it was patulous, and I found all four of my fingers could go through easily up to the second joint, showing that there would be an outlet for the lochial flow. The appearance of blood at the vulva indicated that drainage from the uterus would be all that could be desired.

The closure of the uterus was accomplished by three rows of sutures; the first one, which brought together the mucous membrane, was made with a carbolized sllk ligature. A larger ligature was used for the muscularis. A fine silk suture was used for the peritoneal covering of the uterus. In the mean time the uterus was contracting very steadily indeed, and the hæmorrhage was well under control, so that by the time the muscular wall was brought together it was a dry wound. The abdominal wall was closed in the ordinary way with interrupted sutures and the patient was put to bed with stimulants and hot applications, and she reacted very well. She did well for twenty-four hours without any particular rise of temperature, but in the second twenty-four hours there was a gradual coming up of the temperature and peritonitis set in. I wished to take advantage of cathartics and get her bowels open, but every effort that was made to physic her, in the second twenty-four hours, was entirely futile. Injections by the rectum were attempted, but the pressure upon the rectum prevented the introduction beyond the sphincter ani of a rectal tube; in the mean time the temperature was going up and the patient getting weaker. Then it was decided to open the fluctuating tumor in the pelvis and see what it was. The patient was chloroformed and placed in the extreme lithotomy position. The posterior vaginal wall was found to be extremely blue. The

Cæsarean section was performed about four o'clock in the afternoon, and this operation was done near the close of the third twenty-four hours afterwards, viz., about two o'clock. An incision was made in this bulging mass and the pus welled out in great quantities, amounting to about half a gallon. Upon introducing the index finger into the abscess cavity, a dermoid cyst was detected, the hair being easily detectable. The patient was put to bed after thorough evacuation of the pus, but she never rallied from the shock of the operation and died in twelve hours.

It occurred to me, on first examining her, that this could not be an accumulation of ascitic fluid, and that it must be pus. From the history of the case and the deduction that was speedily made, the decision was reached that abdominal section should be made and the child removed in that way, because in the examination one could feel up in the vagina, with the finger, a hard mass of something below the promontory of the sacrum that appeared to me would render it impossible to introduce forceps and to drag the child through; and if it was filled with pus, I was certain the woman would die of infection.

Professor W. W. Jaggard read the following paper, entitled "A Case of Conservative Cæsarean Section Under the Relative Indication, with Termination in Recovery."

I desire to place on record the following case of conservative Cæsarean section performed under the relative indication, with termination in recovery. In passing, I beg to call attention to certain points of practical interest in connection with the measurement of the pelvis, the indication for, and the technique of, the operation.

Dr. Patrick Dougherty, of Chicago, a short time since invited me to see in consultation a case of alleged contracted pelvis. We examined the patient in the third week of February last, and elicited the following history.

Case.—Mrs. E. S., 36 years old, born in Hillesheim, in the region of the Eyfel Gebirge, Rhenish Prussia, married in the United States shortly after immigration. She had been a sickly child, unable to walk until her seventh year, on account of *Doppelglieder, i e.*, rachitis. During infancy, she suffered from tuberculosis of the cervical glands, two depressed cicatrices being visible on the left side of the neck at the time of examination. Since her seventh year, she has enjoyed robust health.

Her mother gave birth to four children, three of whom were females. All of these labors were normal. Of the patient's two sisters, one has had normal confinements, while the other has been invariably delivered by the aid of instruments.

First pregnancy: patient's first child was delivered May 13, 1882. Shoulder presentation, right scapula anterior position. Difficult delivery by version, decapitation, and extraction. Puerperium normal.

Second pregnancy, delivery June 20, 1883. Same presentation and position as in first pregnancy. Prolapsus of funis. Delivery by version, extraction, and forceps to the after-coming head. Septicæmia, puerperium six weeks.

Third pregnancy, induction of premature labor at the end of the seventh lunar month. Same presentation and position as before. Delivery by version and extraction. Child survived the difficult operation a few hours. Puerperium normal.

Fifth pregnancy, beginning of last menstruation June 1, 1887. *Status præsens:* The patient, of strong frame and well developed muscles, is four feet seven inches in height, and one hundred and thirty-five pounds in weight. Pregnant; near term; distance from ensiform cartilage to pubis, forty-five centimetres (17½ inches); from ensiform cartilage to umbilicus, twenty-two centimetres (8¾ inches); circumference around umbilicus, eighty-seven centimetres (34 inches). Shoulder presentation, right scapula anterior position.

Pelvic Measurements.

Distance between anterior-superior spinous processes	27 cm. (10½ in.)
Distance between iliac crests	27 cm. (10½ in.)
External conjugate diameter (Baudelocque)	14 cm. (5½ in.)
Distance from sacro-coccygeal joint to subpubic ligament (A. G. E. Breisky)	9 cm. (3½ in.)
Distance between the great trochanters	30 cm. (11.7 in.)
Pelvic circumference (Kiwisch)	85 cm. (33¼ in.)
Diagonal conjugate diameter	7.5 cm. (2.9 in.)
True conjugate diameter (estimated)	5.5 cm (2.14 in.)

Diagnosis.—Simple, flat rachitic pelvis, with so-called absolute contraction of the true conjugate diameter. Apart from the pelvis, the osseous system showed no marked signs of rachitis. There was no abnormal spinal curvature, antero-posterior or lateral, and the long bones were perfectly straight.

Indication for Operation.—Notwithstanding the fact that the pelvis was a typical example of the so-called absolutely contracted simple, flat, rachitic class, the history of former deliveries demonstrated plainly that the obstacle to the escape of the child through the natural passages was only relative, and not at all insurmountable. Nor is it necessary, in order to explain the woman's survival of former labors, to invoke extraordinary skill upon the side of the medical attendants—in all twelve in number—nor unusual physical endurance upon the part of the patient, although both conditions were doubtless supplied. Both parents were undersized, with relatively small heads, and the children were of a size less than is common. Moreover, the after-coming head was invariably made to present, and the accommodation of the passenger to the passages was thus greatly facilitated. The case was clearly one in which the woman could be delivered with safety, in all probability, by version, extraction, and craniotomy. On the other hand, the child was living, and Cæsarean section offered the possibility of saving both mother and child, although, of course with enormously increased maternal risk. The question of the induction of premature labor, so late in pregnancy, was not considered for obvious reasons. In a word, the relative indication for Cæsarean section was presented.

The most important condition upon which this indication depends at the present time is the consent of the woman, obtained without direct or indirect coercion. Accordingly, a plain, unvarnished statement of all the facts in the case was made to the patient. She was clearly and distinctly informed that, by the destruction of the child and its removal as in former pregnancies, her life would be almost certainly saved, and that the attempt to save both lives by Cæsarean section would be attended by enormously increased danger to herself. After a week's deliberation, she elected the Cæsarean operation. In reaching this conclusion, she was assisted by the Roman Catholic priest of the parish. This gentleman remarked that the pregnant woman was the aggressor; that she had made the contract of maternity; the child was passive and had made no contract. In strict equity, entirely apart from ecclesiastical considerations, the child's claims to life should be considered at least equally with those of the mother.

Operation.—The patient at once entered Mercy Hospital. The urine was examined and found to be normal. The only preparatory treatment consisted in a daily bath, in tepid water, with the liberal use of soap, which the woman's mode of life before admission rendered necessary.

In the selection of the time for operation, I had determined to choose the latest possible moment before labor actually be-

gan. From the usual data—date of last menstruation, size and position of the uterus, abdominal measurements, length of the child measured by calipers (Ahlfeld), estimate of the size and weight of the child by palpation (Carl Braun)—it was possible in this case to make only a probable diagnosis of the time of gestation. I concluded that the woman was in the last fortnight of pregnancy.

Early Tuesday morning, March 6, the patient informed me that she would certainly fall in labor within the next twenty-four hours. She based her prediction upon dull pain referable to the lumbar and sacral regions, and beginning painful uterine contractions. She had been enabled to foretell her other confinements by similar sensations, and I was inclined to attach considerable importance in this case to subjective signs. The only objective symptom indicative of impending labor was a slight increase in the force and frequency of the intermittent uterine contractions. So the hour for the operation was fixed upon at one in the afternoon.

All precautions were taken with respect to the most thorough cleanliness and disinfection of the operator, assistants, patient, instruments, and environment.

Dr. W. E. Casselberry administered the anæsthetic (ether); Dr. E. C. Dudley, Dr. Bayard Holmes, Dr. G. W. Whitfield, Dr. B. L. Riese, Dr. M. Scheuer assisted me in the operation; Dr. Patrick Dougherty and Dr. Charles Caldwell assumed charge of the babe. I take this opportunity to make my grateful acknowledgments to these gentlemen for their efficient services.

The woman was in excellent condition; cheerful; pulse and temperature normal.

The steps in the operation were: After evacution of the bladder, incision through the linea alba, from the navel to a short distance above the pubes, as low down as was safe, on account of the bladder. The diastasis of the recti muscles was well marked, and the peritoneum was incised without dividing much muscular tissue. No omentum nor intestines presented between the uterus and anterior abdominal wall.

The median line of the uterus coincided with the incision, and the usual manipulation to correct lateral version and axial rotation was unnecessary. Before making the uterine incision, Dr. Holmes placed one hand on either side of the cut, and rendered the abdominal parietes tense enough to prevent the access of fluid to the peritoneal cavity. I incised the anterior uterine wall in the median line at a point a short distance above the os internum with a scalpel, and rapidly enlarged the cut in the direction of the fundus, to the extent of thirteen centimetres (5 inches) with a blunt-pointed bistoury. The thickness of the uterine wall was about one centimetre (one-third of an inch.)

The placenta was implanted over the line of incision, and the first gush of blood was frightful. The after-birth was quickly separated by the hand, the amnion ruptured, the child caught by the feet, turned, and delivered without laceration of the uterine wound. The child uttered a lusty cry upon its liberation from the cavum uteri. I had requested an assistant to insert his index fingers into the upper and lower angles of the uterine incision, and bring them up close to the abdominal cut as an additional precaution against the escape of fluid into the peritoneal cavity. In the hurry of the operation, this request was forgotten. After, or, rather, during the evacuation of the uterus, Dr. Holmes pressed this organ through the abdominal incision, by his hands applied on either side, while Dr. Riese brought the edges of the abdominal cut together behind the uterus, and effectually prevented all intestinal protrusion. The lower uterine segment, after this eventration, was firmly compressed by Dr. Holmes with the thumbs and index fingers of both hands, while the corpus uteri was enveloped in hot sterilized gauze compresses. Squibb's aqueous extract of

ergot was exhibited hypodermically after the evacuation of the cavum uteri.

Hæmorrhage was trifling after the contraction and retraction of the uterine musculature, following the escape of the fœtus and envelopes, and was now fully controlled by digital compression. The elastic ligature was not used in the operation.

Twenty-one deep uterine sutures were inserted, including all the tissues down to the mucosa. For the introduction of these sutures, I used the long, slender laparotomy needle of Thomas Keith. This needle passes with remarkable ease through the thick uterine wall, making a very small puncture that is completely filled up with the suture material—in this case silk. After passing a finger through the canal of the cervix from above downward, the uterine cavity was irrigated with a five-per-cent. solution of carbolic acid, a bacillum containing ninety grains of iodoform placed within, and the wound closed. Union of the peritoneum over the line of incision was effected by a continuous silk suture. When the two rows of sutures had been drawn taut, the uterine wound was accurately closed, and perfectly dry. The uterus, in a state of normal retraction, was returned to the cavity of the abdomen.

The toilet of the peritoneum was brief, as no fluid had escaped into the abdominal cavity, and the intestines had not at any time protruded. The abdominal incision was closed with interrupted silk sutures.

The duration of the operation was about one and one-quarter hours. From the extraordinarily simple *technique*, it would seem that the operation had been needlessly prolonged. But the uterine sutures were inserted deliberately and with care; then, too, time was occupied in securing uterine retraction by the application of hot compresses.

The total amount of blood lost was not great—scarcely more than the average loss in normal labors. The chief element of danger lay in the suddenness of the loss, but no indication arose for the employment of transfusion, the apparatus for which was in readiness.

The shock from the operation was profound, but brief. The patient fully reacted within three hours. Her convalescence was uninterrupted. The pulse at seven, the day of the operation, was rapid, 120 beats to the minute, tense and small. It became gradually less frequent, less tense, until at the expiration of the first week it was normal. The temperature remained nearly normal, showing slight variations in the second week. These variations were attributed to several severe burns, suffered as the result of the injudicious application of hot bottles immediately after the operation. On the third day, the audible escape of flatus was noted, and about the same time the patient began to void urine spontaneously.

Tympanitis was notable by its absence throughout the recovery. On the fifth day the bowels were painlessly evacuated after the exhibition of citrate of magnesia, for which a preference was expressed.

The patient did not vomit at all, not even when she was recovering from anæsthesia.

The lochial discharge was slight, odorless, and ceased at the expiration of two weeks. Lactation was not established. After all former confinements the milk secretion was abundant.

Examination to-day, April 20, reveals the uterus nearly normal in size in mobile anteflexion. The parametrium is free from any sign of infiltration, and no trace of the sutures in the anterior wall of the uterus can be felt upon careful bimanual exploration. The vaginal finger easily outlines the anterior aspect of the uterus. The uterus is situated relatively high up in the pelvic cavity, but can be readily made to descend below the place of the inlet by gentle pressure above the pubes. I suspect the presence of adhesions—they must be very slight, however—between the fundus and the anterior abdominal wall.

The child was a small, but perfectly

formed, and apparently mature male; weight, 3,000 grammes; length, 49 centimetres. The infant thrived on artificial feeding until the sixteenth day, when, after exposure to cold, it died suddenly in a convulsion. The autopsy disclosed intense pulmonary congestion. Although the child was apparently well nourished, it is not improbable that inanition was a predisposing factor. The death of the child was a matter of regret, apart from other considerations, on account of the possible unfavorable influence on the mother. However, she bore the loss calmly, feeling happy that she had given birth to a living child, capable of baptism.

The diameters of the fœtal head were:
Occipito-frontal .....11 cm. (4.29 inches).
Occipito-mental .....12 cm. (4.68 inches).
Bi-parietal ..... 8¾ cm. (3.4 inches).

Pelvimetry.—Dr. R. P. Harris, whose eminent services as the statistician of Cæsarean section are universally recognized, writes in a recent communication to the *Medical News*, March 31, 1888: "What is wanted now is a better acquaintance with pelvimetry, and the steps of the improved operation, as it is performed in Leipzig, Dresden, and New York." No one doubts the truth of this proposition. Certain it is that the notion of pelvimetry generally entertained is obscure and confused in the extreme. Dr. E. C. Dudley informs me that a few weeks ago he encountered a case in which a wife, desirous of becoming a mother, confessed to the practice of the prevention of conception through a period of ten years, under the advice of two distinguished practitioners, upon the ground of alleged contracted pelvis. Careful measurements revealed the fact that the pelvis was unusually large. The woman has since become pregnant. But it is needless to multiply examples of such irresponsible opinion, when we have fatal ignorance flippantly displayed in the literature of the subject. A very pernicious book by a very excellent man, and published only two years ago, contains the following sentence: "External pelvimetry, while of undoubted service in large averages, is of no use in an individual case. The most common application of it is to measure the conjugate diameter by means of Baudelocque's calipers or the like instrument. One point of the calipers is placed on the back over the sacrum, the other over the symphysis pubis, and the distance between is noted. We then guess how thick the sacrum and dorsal tissue are, and how thick the symphysis must be, and, deducting these measurements, we can guess how long the conjugate diameter is, which might have been done without so much trouble in measuring." Many of the cases of Cæsarean section recorded in American annals are rendered well-nigh valueless for the purposes of comparative study by the omission of accurate pelvic measurements. Now, it must be admitted that the exact determination of the size and form of the pelvis constitutes one of the most difficult problems in obstetrics. A survey of the enormous mass of literature upon this subject, accumulating since the discovery of the contracted pelvis by Julius Cæsar Arantius three hundred years ago, fully confirms this opinion. As an excellent critical, historical review of the subject, I beg to recommend to the Fellows of this Society the monograph* of Dr. Felix Skutsch. While all methods of pelvimetry fail to yield absolutely accurate measurements, and our notion of the pelvic anomaly in the concrete case must be inexact to a degree corresponding, still the diameters and dimensions just mentioned are amply sufficient to establish the probable diagnosis of the shape and relative size of the pelvis in the individual case of the more usual types of deformity, and to afford data for comparative study, and ground for action.

I append the corresponding normal diameters and dimensions, as given by Carl Braun and Schroeder:

* "Die Beckenmessung an der lebenden Frau." Jena, Gustav Fischer. 1887.

Distance between anterior superior spinous processes.....26 cm.
Distance between iliac crests.....29 cm.
External conjugate diameter (Baudelocque)..... .....20¼ cm.
Distance from sacro-coccygeal joint to subpubic joint (A. G. E. Breisky) .....12.3 cm.
Distance between great trochanters 31½ cm.
Pelvic circumference (Kiwisch) ..90 cm.
Diagonal conjugate diameter. ...13 cm.
True conjugate diameter.....11 cm.

II. *The Relative Indication for Cæsarean Section.*—Of course, as an operator, I was more pleased to perform Cæsarean section than to do craniotomy. But the humor of the medical attendant sustains no relation to the ethics of the case. I cannot forbear to reiterate here certain convictions that must always come up for consideration in similar cases. These propositions I beg to submit, if the expression be not too harsh, not so much as matters of opinion as matters of fact.

1. The necessary maternal mortality of craniotomy, performed under the conditions demanded in Cæsarean section as respects freedom from exhaustion and infection of the patient, with the best instrument and adequate skill, in cases of the simple, flat, rachitic pelvis, with a *conjugata vera* of six to eight centimetres, is zero. The simple, flat, rachitic pelvis is used as a type in this thesis on account of its relatively frequent occurrence. In the generally contracted and flat pelvis a *conjugata vera* greater than six centimetres must be postulated unless, as in the case I have just reported, the fœtal head is uncommonly small. It has been reserved for Leopold to demonstrate the truth of this proposition. While in 215* cases of craniotomy collected from the records of the Berlin Polyclinic, the Clinic at Halle, and the Leipsic Polyclinic, the entire maternal death-rate was 5.6 per cent., the total maternal mortality in Leopold's Clinic at Dresden during the interval, 1883–1887, after craniotomy, including 71 cases,* was 2.8 per cent. In these two fatal cases the cause of death was eclampsia, so that the mortality due to the operation itself has been reduced to zero.

The operation, performed under its own peculiar conditions, with the best instruments, is not extraordinarily difficult. It does not imply a higher degree of operative skill than it is fair to presume every qualified practitioner possesses. I have observed in all about thirty cases of craniotomy, and have never noted especial difficulty in the technique of the operation, nor unfavorable results to the mother, when the procedure was really indicated, and when the necessary conditions were present.

On the other hand, the mortality of conservative Cæsarean section, even when the necessary conditions have been supplied, is still considerable. Of Leopold's twenty-three cases of the improved Cæsarean section, two, or 8.4 per cent., died. The following extract from a letter recently received from Dr. Robert P. Harris is of interest in connection with American statistics:

"Your case makes sixteen Sänger-Cæsarean sections for the United States, with seven recoveries; and 165 for the whole Cæsarean list, with sixty-three women saved.

"I have twelve cases on record for the the last fifteen months, with six women and nine children saved; yours makes the thirteenth. There were eight operations in 1887, all Sänger's but one, with four women and five children saved. I have three cases in already for this year: one each for January, February, and March; one woman and three children saved."

The Cæsarean section is, and must always remain, the most difficult, dangerous, and formidable procedure in operative obstetrics. The shock incident to the opera-

* Wyder, Archiv f. Gyn., Bd. xxxii., Hft. 1, p. 60.

* Leopold, "Der Kaiserschnitt," etc., Stuttgart. 1888.

tion, entirely apart from sepsis and the loss of blood, is an element of danger that can never be completely eliminated. It is, perhaps, needless to remark that the successful performance of this operation does imply such a high degree of operative skill, and such an experience in this particular operation, as it is fair to presume the average practitioner does not possess.

As remarked by Leopold,* "The time has not yet arrived when craniotomy upon the living child can be unconditionally substituted by Cæsarean section. In a good many cases perforation may be avoided, and in a still larger proportion it cannot be dispensed with."

And Praeger † draws this important conclusion, "In cases presenting the relative indication, and which in a hospital might be subjected to Cæsarean section, the general practitioner, as a rule, ought only to consider craniotomy as the operation involving least risk to the mother."

2. The consent of the patient, obtained without direct or indirect coercion, is an essential condition to the relative indication. The time will probably come when under certain circumstances—*ex. gr.* in hospital practice—the woman shall not be permitted to elect as freely as she must be allowed to do at present.

3. The life of the adult female, who has already contracted relations with society, is of incomparably greater value, as judged by human standards, than the problematical existence of an unborn babe. Moreover, the expectancy of life in such children is decidedly less than in children of normal birth. If the operation is performed before the objective changes of labor are evident, as in the case under discussion, there is the risk of the premature interruption of pregnancy, of obviously serious prognostic moment with reference to the child. The necessary early ligature of the cord deprives the infant of an average amount of blood of ninety-two grammes (Budin, Ribemont). The mother is seldom able, even if she were to be permitted, to suckle her child. Finally, the offspring of women, affected with rachitis or osteomalacia, are frequently feeble, sickly, and unable to resist the unfavorable influence of the environment, entirely apart from the effect of hereditary disease. It is not my intention to use the death of the child in this particular case as an illustration of the truth of the statement just made, since in my judgment that event occurred chiefly as the result of most gross carelessness, *i. e.*, exposure of the child before an open window on one of those bitterly cold days in the latter part of March. Of the twenty-three children delivered alive by Leopold, one died a few hours after the operation (neglected shoulder presentation, laceration of the liver), eight died principally from cholera infantum within from three weeks to one year of the operation, eleven were living at the expiration of one year. The fate of three is unknown.

Now, while the present status of the Cæsarean operation with us scarcely justifies the words of Mauriceau, aptly quoted by Professor Lusk,* "If it be true that any women have escaped, it was the work of a miracle, or the express wish of God, who, if he wills it, is able to raise the dead, as he did Lazarus"; still it does suggest the often quoted remark of Cazeaux: "That which is certain respecting the Cæsarean operation is that more than the half of the women are immediately sacrificed, and that which has been well proven by the experience of the centuries is that, supposing all the infants alive at the moment of their birth, we will see not more than one-half attain the age at which their mothers succumbed."

I do not wish to be regarded as an obstructionist, but desire merely to utter a voice of warning. In this "Cæsarean Revolution in Progress in the United States," let us go

* l. c., p. 164.

† l. c., p. 110.

* "The Prognosis of Cæsarean Operation." The Medical News, October 8, 1888, p. 412.

slowly. In the words of Professor Cameron, of Montreal, that I quote from a letter, and without his permission, "Too much has been claimed for the section; a reaction is bound to set in ere long." Draw the lines of indication and condition more exactly, and surrender the operation to a special class of practitioners.

III. *The Operation.*—The items of special interest in connection with this particular case of Cæsarean section, are:

1. In the selection of the time of operation, I acted upon Schroeder's advice, and chose the latest possible moment before labor actually began. The advantages of an aseptic genital canal, daylight, adequate assistance, and the like, outweigh the danger of atony after evacuation of the uterus. The researches of J. Braxton Hicks * on "The intermittent contractions of the uterus during the whole of pregnancy" are perfectly familiar to the English-reading profession. In a recent note, this observer writes, "These intermittent contractions, always going on, are ready to be intensified by any exciting cause, and especially so at the periods of the suspended menstruation." . . . "The rapidity with which labor can be induced at almost any time of pregnancy is explained now quite readily. Formerly the fact was not explained; indeed, the time for termination of delivery can be precisely stated—the whole process done to order, as Dr. Robert Barnes and myself have pointed out. Dilate the os by elastic bags, turn the fœtus by my method, and in two hours generally the fœtus is expelled. The whole need not occupy more than than from six to eight hours." I was present some years ago at a Cæsarean section performed shortly before term by Professor Spaeth, assisted by Dr. Lumbe and Dr. Ehrendorfer. In this case, as in my own, there was no difficulty in securing retraction after the evacuation of the viscus. Of course, one runs the risk of moment to the child—of interrupting pregnancy some time before term, since only an approximate estimate of the time of gestation can be made from the data we can at present command.

2. The uterus was incised *in situ* and the liquor amnii evacuated through the abdominal cut. Leopold recommends the eventration of the uterus before incision, and it is the common custom to rupture the amnion *per vaginam*. Sänger in his paper, read at the International Medical Congress, recommends the course pursued in this case. I had confidence in the ability of Dr. Holmes' hands to keep blood and liquor amnii out of the peritoneal cavity, and a short cut is of obvious advantage in retaining the intestinal mass within the abdominal cavity, not to mention other benefits.

3. Hæmorrhage was controlled by the normal tonus of the uterus and digital compression of the lower uterine segment. I did not apply the elastic ligature around the lower uterine segment before or after the uterine incision, on account of the danger of paralysis of the structures at and below the point of compression, a danger to which Sänger,* Doléris, and others have called attention. The amount of blood lost during the incision need not be much greater *without* than *with* the elastic ligature. It need not be much more than the amount of blood in the uterus at the time the incision is begun, provided subsequent procedures are executed quickly. The quantity of blood in the uterus at the time the incision is begun is necessarily lost.

4. The long laparotomy needle of Thomas Keith rendered the closure of the uterine wound easy and comparatively rapid. The puncture is very small, and is completely filled out by the suture material.

5. The suture material used in this case was silk. The influence of the suture material on the functions of the uterus, menstruation and pregnancy, is a question of grave practical moment. Leopold has

*The Lancet, p. 554, March 17, 1888.

*Transactions of Ninth International Medical Congress.

rejected silver wire entirely and prefers chrome catgut to silk. In nine consecutive cases he has used this material with entire satisfaction.

The superficial uterine suture was intended to effect linear union of the incised peritoneum, and no attempt was made to fold that membrane into the divided muscularis in order to oppose peritoneal surfaces of relatively great areas. This constitutes a departure from Sänger's method. Schroeder* pointed out the essential weakness in the sero-serous suture, when he called attention to the fact that incised wounds with their edges accurately approximated are surer to heal than opposed peritoneal surfaces. In order that opposed peritoneal surfaces should unite, some new irritation is necessary to produce adhesive inflammation. This observation has since been confirmed by the investigation of Zweifel, Graser† and J. Veit.‡

Professor C. T. PARKES: As I was present at Dr. Etheridge's operation, I should like to say a few words in regard to some of the impressions made upon me by the operation. First, in regard to its severity; so far as my experience goes with disease or injury affecting the abdominal cavity, I am sure I have been through cases quite often that would give me a great deal more anxiety and be found more troublesome to manage than the doing of this operation. It struck me as being a very simple operation, at least to any one who is accustomed to having anything at all to do with the abdominal cavity. In the first place, the uterus is so large and it fills up so much of the cavity of the abdomen, that all the other viscera are out of the way, as was beautifully illustrated by Dr. Jaggard; there was nothing to be seen when the abdominal cavity was opened except the uterus, and it was very easy for the surgeon to open it. It was one of the easiest things imaginable to get the contents of the uterus out. So far as the flow of blood was concerned, I did not think there was any great amount of blood lost, considering the tissues divided and the size of the vessels cut. The gush is at first rather astonishing, but after a little time there is a rapid cessation of the bleeding. The bleeding in this case was very readily controlled by compression, and it did not strike me as being hurtful to the patient. I am quite sure she did not show any of the signs that are so often present when a large amount of blood is lost in other parts of the body. I am sorry that a complete post-mortem was not made after the death of the patient because I was very desirous of seeing the result of the manner of suturing that was adopted, because it struck me as being perfectly safe. After the suturing was done, the wound was perfectly dry in every way, and after this part of the work was over and the operation done, with the exception of closing the abdominal wound, no sponging was required. There seemed to be no trouble in keeping everything out of the abdominal cavity, either amniotic fluid or blood.

Another point struck me in this case, not directly in connection with Cæsarean section, but as interesting in obstetrics. I have always been taught and always supposed that, during the development of the uterus in the latter stages of pregnancy, all parts were dilated, that the cervix was opened out and became part of the body, that it was thinned out so that the cervix and body became continuous, but to my astonishment, when the body of this uterus was exposed, the cervix was perfect in shape and retained the same relation to the body as in the normal state. There did not seem to be any losing of the cervix in the body by dilatation.

The PRESIDENT: I congratulate Dr. Etheridge upon his courage in performing Cæsarean section under such adverse circumstances. Most operators would have preferred to attack the pus tumor from

*Zeitschr. d. Geb. und Gyn., Bd. 10, 395.
†Habilitationschr., Erlanger, 1886.
‡Deutsche Med. Wochenschr., 1888, No. 17.

below, delivered the child through the vagina, and have trusted to antiseptic treatment to prevent or modify subsequent septicemia.

I wish also to congratulate Dr. Jaggard upon the completeness of his paper in placing this subject before us in its most modern aspect.

Dr. J. C. HOAG: I do not feel like saying anything after so many others have maintained silence, but I think the papers deserve to be favorably discussed, and at least some questions might be asked on the subject. I thought, while the papers were being read, of a medical meeting I attended some time ago in London, where the relative merits of Cæsarean section and craniotomy were discussed. The meeting was attended by some of the most eminent men of England, and there seemed to be a very general consensus of opinion that craniotomy should be entirely abandoned. It seemed that the discussion first arose at a meeting of the British Medical Association, and it was afterwards kept up for some time in the society to which I refer. I was a little astonished to find that, at the same time the opinion was prevalent that craniotomy (embryotomy was perhaps the term used) should be abandoned, there was not a gentleman present who knew what Sänger's operation was, and it was suggested then that some one look up the subject and report at the next meeting.

With regard to the technique of the operation I remember to have read that on one occasion, when there was quite profuse hæmorrhage and where retraction and contraction did not take place after the operation, the operator was bold enough to keep the uterus open for an hour and a half, keeping it packed with ice, and that the patient made a good recovery. I have also noticed somewhere that some operator has suggested the advisability of putting in a few sutures in the abdominal wound previous to incising the uterus, so that after removing the child the walls might be drawn together somewhat and thus aid in the prevention of accumulations in the peritoneum. I would like to hear what the gentlemen think of these suggestions.

Professor F. C. SHAEFFER: I think the essayist deserves great praise for his courage, and is to be congratulated upon the brilliant results. Considering the varied circumstances under which these operations were done, it seems to me the results were extraordinarily good. It has afforded me very great pleasure to hear these papers to-night.

Professor CHARLES WARRINGTON EARLE: I would like to ask Dr. Etheridge one question: Were you able, in the time at your command, to make any effort at trying to find, through the incision in the abdominal wall, the nature of that obstruction below? You knew there was a fluctuating tumor there; did you examine it at the time of the operation?

Professor ETHERIDGE: I did not. I was so anxious to close up everything and get it out of the way that I did nothing of the sort. I was very greatly disappointed in our inability to secure a post-mortem examination. The next morning, when I reached the hospital, about half-past nine, the body had been taken away, so that that part of it will always have to remain obscure.

In regard to doing the other operation of opening the abscess and letting the discharge come away from it, I can say this: I have my doubts as to the possibility of saving the woman under the circumstances, from the fact that the pelvic cavity was not sufficiently enlarged by the evacuation of the tumor to admit of pulling the child through. This still constitutes, in my mind, an imperative objection to opening the tumor before the attempt at Cæsarean section.

I cannot resume my seat without congratulating Dr. Jaggard upon his very elaborate and learned report of his case. I think he is certainly to be thanked by this society on the production of his paper.

Professor W. W. JAGGARD, in closing the discussion, said he was grateful to the

Fellows for the kind attention given to his paper.

After answering Dr. Hoag's question, he said that he thought Dr. Parkes' notion of Cæsarean section, as expressed in his own words, was erroneous and calculated to mislead. The *technique* of the operation is apparently simple, but the dangers of shock, hæmorrhage, and sepsis are constantly present, and every minutest detail demanded the most critical attention. The terrible mortality of the operation with us in the United States abundantly demonstrates its formidable character.

Professor Charles T. Parkes read the following Report of FIRST FIFTY OPERATIONS FOR OVARIAN TUMORS.

In presenting for your consideration a tabulated list of my first fifty cases of operation done in succession for ovarian tumor, it will be my object to call attention to those only which seem to me to possess somewhat special characteristics, or have shown something unusual in their course. Not but what I believe that every case is of special interest to the operator, in so far as it furnishes him individually with useful experience and something new to cogitate over, and from which to elucidate improvements in future cases coming under his care. To mention all these circumstances would become monotonous.

In the final summing up I shall attempt to group together, in a somewhat practical way, the deductions which come to my mind as the outgrowth of this amount of work.

My work in this field commenced rather early in my professional career, and whatever success may have attended my efforts could not have been, and was not, the outcome of any special preparation. The first half-dozen operations were done before ever having witnessed the operation performed by any other operator.

In 1878 it was my privilege to see considerable of this kind of work executed by the attendants at the Samaritan Hospital, London, and other surgeons.

Since then, I have felt more at my ease in this labor, and could speak more emphatically as well as encouragingly to my patients. Before then the work had associated with it a large expenditure of force, both mental and physical, on the part of the operator, and I am free to admit that, as a rule, the patients did not get along as easily and smoothly as they have since. Still it has been my good luck not to have a very large percentage of mortality. The table shows that the second and the thirty-seventh cases died as the result of circumstances attending the operation. Two out of fifty—it is not a bad showing. If it is my good fortune to equal this percentage in the second fifty, no complaints will be heard from me.

CASE I.—This lady is still living in this city. She has never borne any children. The operation was done during the third year after my graduation, and is chosen for remark, first, because the case furnishes a good illustration of the impudence and assumption sometimes displayed by young and ambitious practitioners, and which causes them at times to run where angels would fear to step even slowly. I believe I invited to be present at the operation Professors Freer, Gunn and Powell, Jackson, Bogue, and some others, and they were all on hand. It has always been a mystery to me how that operation was carried on, or finished; perhaps some who were present might be able to tell, it is impossible for me to do so. However, it is clear in my mind that there was no encouragement to me in their prognostications as to the result. They were unanimous in the assertion that the issue would be fatal. But it was not, although the patient had a hard time of it for a while. Secondly, the case is of interest in the condition which made her recovery slow and full of hazard. The fourth or fifth day showed evidences of profound septic infection. An abscess was at last discovered in the cul-de-sac of Douglas. After opening and washing it out and draining thoroughly, she passed on rapidly

to a full recovery. This latter inflammation may have so changed the remaining tube or ovary as to account for the subsequent sterility. No antiseptic precautions were adopted in this case.

CASE II.—This case was one of double ovarian tumor. The right cyst was free, non-adherent, and easily removed. The left was universally adherent to the left side of the abdomen, to the small intestines, spleen, and stomach. Its contents were so gelatinous that they were scooped out with the hands, and the cyst-wall was so thin that it broke down in many places during these manipulations, allowing the contents to become disseminated about and around the abdominal organs. The oozing was very free from the extensive surfaces of adhesions, and there was used a solution of persulphate of iron to check it. This remedy is a very unpleasant one to employ; this was the first and last case in which I have made use of it. The abdomen was washed and cleaned, as I thought, thoroughly.

A large-sized rubber drain was carried to the bottom of Douglas' cul-de-sac. The outer end of it was connected with a long rubber tube, carried outside of the bed and beneath it, and submerged in a solution of carbolic acid. The patient died on the third day of acute septicemia. The drain, carried to the bottom of the receptacle, gave exit to about two ounces of the contents of the cyst. It is fair to think that this case could be managed better to-day. No special antiseptic measures were adopted.

CASE IX.—This case was the first tumor with purely colloid contents which I had come across. It was with the utmost difficulty that its contents could be emptied out of the rather small incision which exposed the tumor. Still, by persevering effort, it was all dug out, and as few and recent adhesions only were found, the empty sac was pressed out and rather easily removed. I have seen such cases treated by enlarging the abdominal incision in order to turn the mass out entirely. It has struck me that this method was not as good as emptying the cyst through the small incision. As all the cases turned out *en masse* have died, that fact may have influenced the formation of the opinion expressed. The cause of death may have been something else.

CASE XXVI.—This case was the youngest person upon whom I have operated. Owing to the great size of the tumor, as compared with the size of the body, she presented a very odd appearance.

In order to maintain an equilibrium while in the erect position the shoulders were thrown far back—a plumb dropped from the shoulders touched the floor six inches behind the heels.

The tumor was a dry one, and before it could be extruded the abdominal incision was prolonged above the umbilicus. For such a massive tumor the pedicle was very small as well as elongated. The weight of the tumor was fourteen pounds. The case was to me particularly interesting because it was the only one of the series in which any attempt was made to carry out *in full* all the details of a Listerian operation, including the spray. Notwithstanding all this, an abscess formed in the left iliac fossa, which delayed the recovery for weeks and placed her life in great danger, especially as, even after it was opened externally, it seemed to empty internally into the bladder; large quantities of pus were passed from that viscus.

At the end of six weeks she had entirely recovered. This was the only case in which I have been haunted with the fear that I might have left some foreign body in the abdominal cavity, such as a sponge or a pair of forceps.

The sequelæ showed it to be a groundless fear fortunately. The subsequent history of this case is also interesting.

At the end of two years she again came under my care with the abdomen distended with a large growth.

This secondary growth commenced in the

upper zone of the cavity and in its development increased downward. It was diagnosed to be post-peritoneal, on account of the crackling which could be produced by manipulation in circumscribed spots over the surface of the tumor. The noise was evidently produced by the displacement of intestinal gases over limited spaces.

Upon opening the abdomen, the mass was found entirely behind the peritoneum, which was opened posteriorly and the tumor easily enucleated. As far as could be determined, the mass grew from the lesser end of the pancreas.

She did not survive the shock of the operation but a few hours. The mass proved to be sarcomatous. A post-mortem examination showed no traces of even the stump of the first tumor.

Dr. Fenger was present at the first operation and pronounced the tumor to be a heterologous growth.

With an entire absence of any remnants or signs of the primary tumor, it seems rather difficult to trace any connection between it and the secondary manifestation.

CASE XXXV.—This was a case of double papillomatous ovarian cyst, in which the tumors had become intimately adherent, filled up the pelvis entirely, so as to absolutely conceal the womb and bladder. The cysts had ruptured so that in themselves they were small. The abdomen was distended with an immense quantity of free fluid. They were freely enucleated from their bed and from the surface of the uterus and bladder and removed. There was left as the result of this extensive peeling a surface coequal in size with the capacity of the pelvic basin. After securing the pedicles and a few spurting arteries, the bleeding was easily staunched and showed no disposition to return after the introduction of a large drainage-tube to the bottom of the cavity and closing of the abdomen. I have never seen a larger flow of serum from a drainage-tube than followed in this case for several days. Fortunately no infection of the general peritoneal surface had occurred, so that the lady recovered very rapidly and is well and strong to-day. The free drainage in this case, I have no doubt, contributed very greatly to the easy recovery. Without it I believe the patient would have been suffocated by accumulation of serum, certainly no powers of elimination could have removed the amount of fluid drained.

CASE XXXVII.—This case was certainly the worst I have ever met with so far as extent and firmness of adhesions go. It was universally adherent to the abdominal walls, the small intestines, the bladder, the uterus, the under surface of the liver, and to the stomach. In fact, at only one place was a space as large as the surface of the hand untrammeled by adhesions. This was around and about the pedicle. After separating the attachments to the abdominal walls down to this space on the right side, the pedicle was ligated and divided. It seemed impossible to reach the limits of the tumor from the anterior surface upwards, so after securing the pedicle the sac was turned upwards and the separation of the adhesions carried on from behind. It was a very slow and tedious piece of work, separating coil after coil of small intestine. When the stomach was reached, the adhesions were found so firm and extensive that it was deemed best to leave a large piece of the external layer of the sac-wall attached thereto, rather than to try to separate them. This was accordingly done. All of the tumor except the piece left on the stomach was finally removed. There was not an excessive amount of bleeding, and the abdominal cavity was readily cleansed and a drain put in.

The operation was done in Nebraska, and I had to leave the patient within two hours after the operation was finished. She was then in good condition. She died on the sixth day, as the doctor in charge wrote me, with all the symptoms of unrelieved obstruction of the bowels. Perhaps if the abdomen had been re-opened early in the manifestations of these symptoms, the obstruction might have been overcome, but

this can only be a supposition. This was the second and last death in the series of fifty cases.

CASE XXXVIII.—The tumor in this case was accidentally discovered while operating upon a growth developed in the abdominal walls over the neighborhood of the gall-bladder and from which there was removed a gall-stone of considerable size. Some months after the recovery from this operation, laparotomy was done for the small tumors which filled the pelvis and were developed from both ovaries—the right one much larger than the left, but both small. They proved to be ruptured cysts, showing papillomatous degeneration. Some six weeks after this operation, after the wound had united well and recovery seemed established, she developed increasing symptoms of bowel obstruction. Examination of the rectum revealed a cancerous mass at the upper end of the rectum, probably also involving the sigmoid flexure. She was anæsthetized and the narrowed channel well dilated, sufficiently at least to relieve the accumulated contents. Still the patient gradually emaciated, and at the end of a week or ten days succumbed to the effects of the complication.

CASE XLI is only remarkable from the age of the patient—78 years old—and the perfectly uneventful recovery after the operation. Looking back at the case, I remember the impression made upon me at the time was that she was the most contented patient ever under my care.

No anxiety or worry of any kind was manifested. Everything done was good enough for her and gracefully accepted. The querulousness and disposition to be exacting sometimes supposed to go with old age was never displayed. I am quite sure her peaceful disposition had much to do with her speedy and happy recovery. I have since operated on a lady 68 years old for an ovarian cyst, and the results were nearly alike. So far as these two cases are of account, nothing whatever occurred that would make quite old age militate against the performance of the operation. The shock did not seem so great as in many other easier cases in younger patients, and the reaction was quite as prompt and harmless.

The case under consideration was a large multilocular cyst with thick walls and septa. The previous tappings had not apparently left any unfavorable conditions in their wake. The adhesions present gave no noticeable trouble.

CASE XLII.—This was my first case of twisted pedicle. The inflammatory symptoms—peritonitis—high fever, and extreme prostration had existed several days before the patient came under my care. Operation was advised and done immediately. The bad symptoms subsided at once, and the recovery was uneventful.

There followed in due course quite a large ventral hernia, although primary union occurred in the wound, at least in the skin.

It is possible that the usual care in picking up surely each layer of the abdominal wall was not followed in closing the incision, but I was not aware of leaving anything undone in that respect at the time of the operation. The diagnosis of twisted pedicle was based upon the previous existence of the tumor, its sudden and rather rapid enlargement, extreme tenderness of the tumor followed by the usual symptoms of peritonitis and constitutional manifestations of early and severe character. There was present also a free flow of dark blood from the uterus, commencing with the first symptoms and persisting.

CASE XLV was the second tumor removed having very thick colloid contents. It was perfectly symmetrical and free from adhesions of any importance.

The contents were extremely tenacious, and their removal to diminish the size of the cyst was attended with extreme difficulty. The cyst was held very carefully against the edges of the abdominal incision during these efforts, in order to avoid the entrance of any of the stuff into the peritoneal cavity. It is much easier to keep it

out entirely than it is to get it out after it has once gained admission into that cavity. On two occasions the leaving of a very little of this material in the cavity inadvertently has given rise to serious complications in my experience.

CASE LX.—This case was also one of twisted pedicle; the symptoms of rapid increase in size, tenderness, and uterine hæmorrhage coming on suddenly and persisting, with developing peritonitis, were plainly present in the case and early operation advised. Consent to operate was not obtained readily, and when the incision was made the cyst and pedicle were found black.

Ulceration between the living and dead portion of the pedicle had well advanced at the site of the twist lowest down on the pedicle. Its complete separation was unattended with hæmorrhage. The case did well from the very first day.

REMARKS.

It has always been my aim to do every one of the operations here recorded with closer and closer attention to absolute cleanliness of person, assistants, patient, and of appliances.

As time passed along, more experience gained, and complicating difficulties traced to their cause, after suffering manifold mental worry over them, this aim has been better and more certainly attained, with a corresponding increase in confidence in myself and ability to make assurances to the patient with an abiding faith in their fulfillment.

There is no doubt in my mind whatever about the good done a patient by relieving her mind of doubts and nervous dread preceding the operation, as can be done by confident assertion. The success attained in ovariotomy of late years warrants an indulgence in very strong assurances on the side of recovery in all classes of cases.

The attempts to secure asepsis—to surely save one's patient from the dangers of fermentation, suppuration, and decomposition of wound secretions—brooks no neglect of any kind in the items already mentioned. It is not a pleasant thought to be forced to the conviction that you have rewarded the confidence and faith reposed in you by carrying to the afflicted one the elements which, once developed, so often destroy life, especially if the misfortune be the result of carelessness or over confidence. So nothing that is used or brought in contact with the patient should be allowed to pass without the closest inspection by the operator himself. The patient puts her life in the operator's hands, not in those of an assistant, and is entitled to the former's own care and attention to the smallest detail in the preparation of needles, forceps, and instruments of all kinds, ligatures, sponges, and dressings. It is my conviction that sponges should not be used the second time in abdominal operations, no matter how well they are cleaned. They are so difficult to free absolutely from the contamination of blood and secretions that one can scarcely be sure of them. Besides, the operation is so well paid for in most instances, and the material so cheap, that there seems no excuse to run any danger whatever.

The greatest diligence should be observed in keeping everything harmful out of the peritoneal cavity. Reference is made not so much to foreign bodies of large or small size, although such ought never to occur, as to the escape of the contents of the cyst into the cavity. To me it has always been a very difficult undertaking to clear out any such secretions, especially if they are from a cyst with sticky contents. In two cases I worked for fully an hour in my desire to be sure that all particles had been removed, and yet in both cases an abscess subsequently formed, accompanied with a formidable temperature and general exhaustion. These accumlations were fortunately found and opened. Their contents showed more or less of the same material that filled the cyst, and the trouble was evidently dependent upon its presence

in the cavity. The stuff will not flow through a drain easily, so that I am not sure its use would have overcome the difficulty.

The contents can usually be kept out of the peritoneal sac by making the cyst constantly expand the edges of the abdominal incision during the necessary manipulations, by careful pressure against the tumor by an assistant.

The ligatures used have always been of carbolized silk, and they have never given rise to any trouble. In the greatest number of cases the pedicle has been clamped, the tumor removed, and the stump thoroughly cauterized down even with the clamp. Then the pedicle was sufficiently subdivided just below the clamp and ligated with silk, after which the clamp was removed and the stump dropped. I have never had, following this method, any bleeding, or been called upon to reapply the ligature, or fish up a stump out of the pelvis after it had been dropped, to stay hæmorrhage. It is the method used by Dr. Homan, of Boston.

Accidents such as indicated have hap- to me when using other methods, and I have seen them occur in the hands of other operators.

Perhaps I may be pardoned for uttering a warning against using the ends of a ligature just tied for the purpose of bringing the tied tissue into view for inspection, especially against using them to in any way steady or lift the pedicle. This latter should always be fixed and manipulated with a pair of forceps fixed to its edge below the site of ligation. On more than one occasion traction on the ligature, apparently slight, has destroyed its compression and induced bleeding, or even torn it entirely loose, necessitating a tedious search for the lost stump in order to re-tie it; and one never feels as certain of the security against hæmorrhage after such an accident, aside from the delay and annoyance caused.

My experience confirms the great worth and necessity for the drainage-tube in many cases. Cases with many vascular adhesions leaving extensive oozing surfaces seem to always require the drain. Many cases would undoubtedly do better with it, even in which the raw surface is not large. One is more apt to err on the side of leaving it out than of making use of it too frequently. It takes but little over-weight of absorption and elimination of even not badly contaminated fluids to upset a patient's easy recovery, which might have all been obviated by the use of a drain for twenty-four or forty-eight hours. I have not noticed much difference in its workings, whether it be of glass or rubber; I have used both and the object aimed at was accomplished by either equally well.

The abdominal wound has always been closed with the silk suture passed carefully and carried through the different layers of the abdominal walls, including the peritoneum. It does not seem that any more satisfactory method has been advanced. It is quickly executed, and absolutely trustworthy in the vast majority of cases. Two of my cases have had ventral hernia follow; but I am inclined to think other things had something to do with the occurence of the complication, such as too early assumption of the erect position, too free motion, and discarding the abdomiual support too soon. Very few of the cases have shown any suppuration in the track of the sutures, or other complication in the line of the incision; certainly no more that six gave any trouble whatever. In very thick, fat walls, the use of three or four button-stay sutures, introduced well away from the edges of the incision, is of great advantage in maintaining the parts in close apposition and conducing to early and firm union.

In the after-treatment of the earlier cases it was the rule to use the catheter to empty the bladder six hours after operating. Quite a number of the cases developed a troublesome cystitis, and in some cases a urethritis, no matter what care was taken with the instrument or in its intro-

duction. Of late it is not used unless absolutely required. The patient is induced to make earnest efforts at self-relief, and success generally follows these efforts, and the cystitis has ceased to be a complication.

It has become my habit not to feel concerned about a temperature up to 101° Fahr., coming during the first three or four days after an operation, if it be unaccompanied with unusual pain, headache, or anorexia. By securing a free action from the bowels by the administration of 5 grs. of hydrarg. submur., followed in due time by some saline cathartic, and urging the patient to partake freely of water, the temperature ordinarily drops to about normal in twenty-four hours. If, with a nearly normal temperature for several days after operation, it suddenly mounts to 100° or more, some complication is impending, and it must be sought for with great care. Latterly it has been a surprise to me how many of the cases go on to a safe recovery without the administration of any medicine. If sepsis is avoided, the individual's own powers of repair seem entirely competent to combat other complications with the simplest of assistance. When pain is a complication, rectal injection of the tr. opii deodorata, in full, free doses (30 drops or more), has always seemed to cause the least disturbance and accomplish the best results.

In none of these cases did there arise any necessity for re-opening the abdominal wound.

The highest temperature recorded occurred in the twenty-sixth case, in which 104° was present for several days. The abscess was found and opened and the girl got well. Cases one and nine, forty-five and forty-seven, also had abscess collections, with high temperatures. The collections of septic matter were opened where developed, and the cases finally recovered; but the complication entailed upon them a slow recovery and a weakened general condition which those escape who pass through their ordeal free from such complication.

Both with these serious conditions and other slighter ailments, less severe but absent entirely in perfectly aseptic cases, the fault must be laid upon my own shoulders. At first lack of experience, then want of attention to detail in appliances or surroundings, and finally, perhaps, over self-confidence. It is my belief that he will have the best success who is modest enough to be haunted by some doubts about himself, and so to be ever on the watch to prevent the entrance of harm from without.

The internal remedies from which the best results have been obtained for the relief of tympanitis are the spts. terebinthina and tr. nux vomica; the former to allay gaseous fermentation and as an antiseptic; the latter acting probably as a stimulant to intestinal peristalsis. It has never seemed to me that much of any good was accomplished by the rectal tube. It is not my wish to advise against its use, for many operators believe in its efficiency and use it constantly. It is quite possible that I do not use it skilfully. However that may be, I do not remember to have gained much if any good by its use. Cases in which the introduction of the rectal tube released any amount of gas could always relieve themselves by exercising a little will power, partially that of relaxation of the sphincter, mainly that of contraction of the abdominal walls. It has seemed to me that its presence in the rectum, if left there, as is practiced by some, might be of service as a foreign body in exciting peristalsis. Tympanitis, like so many other complications when they come, is usually the result of septic infection, and is best dealt with by keeping the germs away from the patient before, during, and after the operation.

The fluid I am in the habit of using for purposes of washing or irrigation is plain distilled or boiled water, with the addition of a small quantity of carbolic acid, making a solution of a strength of about

two per cent. It does not seem certain that the germicidal power of this solution is of much consequence, still it does not seem worth while to dispense with it entirely. In washing out the peritoneal cavity, if occasion requires, a strong solution of boracic acid is used, and has done its work harmlessly and satisfactorily. Of course, reference is made here entirely to ovarian tumors, pure and simple. Infected cases, with pus present and other harmful fluids, require more powerful antiseptics and assiduous care in getting rid of their presence by every known means.

The fifth and thirty-fifth cases of this series showed papillomatous degeneration and rupture of the cyst wall, with the presence of extensive accumulation of ascitic fluid, rendering the diagnosis extremely uncertain. I have operated on several cases since, and they have all been difficult to diagnose and to handle. Fortunately, these two presented no secondary infection of the peritoneum, and they recovered.

The diagnosis must be made by a process of exclusion:

Heart dropsy, by its absence of facial œdema and heart lesions. Kidney dropsy, by the absence of leg œdema and the signs of kidney degeneration as shown by the microscope. Ascites, from liver or vessel obstruction, by absence of the manifestations of disease of those organs, as shown by careful physical examination and inquiry as to their usual constitutional manifestations.

Digital examination in all the cases seen by me has demonstrated the presence of a somewhat circumscribed mass in the pelvis from which the uterus could be isolated. The feel of the mass itself gives one the sensation of touching an irregular, doughy, cauliflower-like tumor. The differential diagnosis from tubercular peritonitis with ascites will be, in the absence of the tumor from the pelvis and the presence of a greater or less number of irregular, hard, perhaps movable, masses distributed through the cavity, showing involvement of the omentum.

Differential diagnosis of cancer will be probably in the fact that the latter shows less ascitic accumulation, a more easily defined mass much harder to the touch. Examined through the pelvis, every tissue is apt to show infiltration; the uterus is fixed and implicated in the growth; the roof of the pelvis everywhere hard and resisting. There will more likely be evidence of interference with the circulation of one limb, as shown by œdema confined to one side. Enlarged and tortuous external abdominal veins and more rapid and profound constitutional manifestations will be present. Even after rupture of the sac and moderate infection of the peritoneum, these cases seem to do perfectly well after operation and removal.

It seems to be of paramount importance to institute such care of the patient as will most surely prevent, diminish, or overcome the occurence of shock. After every severe operation, much can be done by the use of external warmth, and also care during the progress, by keeping wet clothes away from the body. I am still convinced of the efficacy of morphia and quinia administered half an hour or so previous to the commencement of an operation.

It can scarcely be denied that the patients do best if little, or better still, nothing, is put into the stomach for twenty-four hours or more. If introduced, the effect is merely to increase the disposition to vomit.

Judging from the results of considerably over one hundred laparotomies for different diseases, I think it proper to say that as a rule an operation for the relief of a simple ovarian tumor is about the simplest proceeding the surgeon is called upon to do in the abdominal cavity, and one from which the patient is most likely to recover.

Professor C. T. PARKES, in closing the discussion, said: There is very little to say, except, perhaps, in reference to what was

No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Incision.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesions.	Pedicle, Kind and How Treated.	Result.	Remarks.
1	Sept., '71	Hughes	23	Multiloc.	R	No	No	No	M	Good	S	No	Yes	No	27 lbs.	No	Yes	Transfixed; ligated	R	Ligature discharged through abscess in cul-de-sac of Douglas two weeks subsequent.
2	" '71	*Forberger!*.....	35	Mul. colloid	R & L	?	Yes	.....	M	Died	L	No	.....	No	43 "	*! Yes*	Yes	Long pedicle; transfixed and ligated.	D	Left very large; right small and single. Tapped once previously.
3	" '73	Winchell	49	Mul. cyst	L	No	No	?	M	Good Died 1880	S	No	No	No	34 "	No	Yes	Moderate pedicle; transfixed and ligated; silk.	R	Right ovary also removed; cystic degeneration. Tapped twice.
4	" '73	Peters	37	Broad lig. cyst...	R	Yes	No	?	M	In 1881 Good	S	No	No	No	22 "	No	Yes	(Enucleated) ligated; silk	R	Cæcum and colon carried upon wall of tumor some distance.
5	" '73	O'Mally.....	45	Double papilloma	R & L	No	Yes	No	M	Good Died 1884	L	Yes	No	No	42 "	Yes	Yes	Short; transfixed; clamped, cauterized, and ligated.	R	Cyst small.
6	" '73	Carney..... ...	44	Unilocular	R	No	Yes	No	M	Good Died 1878	S	No	No	No	26 "	No	No	Fair; transfixed and ligated.	R	Contents milk-white.
7	April, '73	McGovern	33	Multiloc.....	L	Yes	No	Yes	M	Good	S	No	No	No	21 "	No	Yes	Long; transfixed and ligated.	R	
8	" '74	Hunt	39	Unilocular.... ..	L	?	Yes	?	M	Good	S	No	No	No	33 "	No	No	Loug and slender; transfixed and ligated.	R	Thick walls; chocolate-colored fluid.
9	" '74	*Edwards!*.....	41	Colloid tumor ...	R	Yes	No	No	M	Good	L	No	No	No	32 "	No	*! Yes*	Broad; short four sections; clamped; cautery; ligated.	R	?
10	" '75	Foster	52	Multiloc	R	No	7	No	M	Heard 3 years after, Fair	S	No	No	No	24 "	No	Yes	Short and broad; transfixed, ligated, and cauterized.	R	
11	May, '75	Martin.....	57	Broad lig.....	L	Yes	No	?	M	Don't know	S	No	No	No	28 "	No	No	Transfixed and ligated.	R	Enucleated.
12	Sept., '75	McNulty	28	Multiloc.....	L	Yes	No	?	M	Good	S	No	No	No	.....	No	Yes	Ligated in many sections and divided.	R	Also removed mass of omentum
13	Dec., '75	Jones.....	48	Multiloc. cyst ...	L	?	5	?	M	5 years after, Fair	S	No	No	No	22 "	No	Yes	Thick; transfixed and ligated.	R	No answer to letter.
14	" '75	Hunter	55	Multiloc. cyst....	R	No	2	No	M	Fair Died 1876	S	No	No	No	25 "	No	Slight	Short and thick; transfixed, ligated, and cauterized.	R	
15	Jan., '79	Hedrick	62	Multiloc. cyst....	L	No	3	No	M	Fair 3 years after	S	No	No	No	18 "	No	No	Moderate; transfixed, ligated, and cauterized.	R	
16	" '79	Phillips	36	Multiloc. cyst....	L	Yes	No	No	M	Poor	L	No	No	No	39 "	Yes	Yes	Broad, short and thick; transfixed, ligated, and cauterized.	R	Semi-solid contents.

No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Incision.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesion.	Pedicle, Kind and How Treated.	Result.	Remarks.
17	Mar., '79	Henderson.....	29	Uniloc. cyst	L	?	No	?	M	Good	S	No	No	No	18 lbs.	No	No	Moderate; transfixed and ligated.	R	
18	Mar., '79	Pollock.....	31	Multi. cyst, colloid	R	?	?	?	M	Fair	L	No	No	No	23 "	No	Yes	Medium; transfixed, ligated, and cauterized.	R	
19	June, '79	Probiski.....	25	Mulit.cyst.Uniloc. cyst.	R	Yes	?	?	M	Fair	S	No	No	No	38 "	No	Yes	Fair; long and broad; transfixed, ligated, and cauterized.	R	
20	" '79	Healy.....	18	Parovarian cyst..	L	Yes	?	1	S	Good	S	No	No	No	23 "	No	No	Short and broad; ligated in four sections.	R	
21	" '79	Dayton.....	36	Dermoid cyst	R	Yes	2	No	M	Fair	S	No	No	No	18 "	No	Yes	Broad; transfixed; ligated in three sections.	R	Adherent portions of cyst wall, to cæcum and uterus left
22	Nov., '79	Johnson.....	43	Parovarian cyst..	L	?	No	No	M	Good 5 years ago.	S	No	No	No	23 "	No	No	Long and slim; transfixed and ligated.	R	
23	" '79	Jones.....	23	Multiloc. cyst....	R	Yes	No	No	S	Good	S	No	No	No	19 "	No	Yes	Broad; ligated in three sections and cauterized.	R	
24	" '79	Mason.....	65	Multiloc. cyst....	L	No	3	No	M	Died 2 years after. F'ir to death.	S	No	No	No	19 "	No	Yes	Broad; transfixed and ligated.	R	
25	'80	Mastin.....	39	Parovarian cyst..	R	Yes	?	?	M	1883 Good	S	No	No	No	23 "	No	No	Broad; ligated in four or five places.	R	Enucleated.
26	Aug. '81	M. Herman....	7	Sarcoma.....	R	No	No	No	S	Good	L	No	Yes	No	14 "	No	Yes	Long; transfixed and ligated.	R	Died three years subsequent; return of disease in pancreas
27	June, '82	Peterson.....	24	Multiloc. cyst	R	No	No	.....	S	Good	S	No	No	No	35 "	No	Yes	Long and slender; transfixed, ligated, and cauterized.	R	
28	Feb., '83	Allen, Mary....	18	Multiloc. cyst....	R	Yes	No	No	S	Good	S	No	No	No	28 "	No	No	Broad and short; transfixed, ligated in four sections, and cauterized.	R	
29	June, '83	Connelly, Bdgt.	47	Multiloc. cyst....	R	No	Yes	No	M	G'd to death.	S	No	No	No	34 "	No	Yes	Four inches long and three broad; transfixed, ligated, and cauterized.	R	Died 1885.
30	" '83	Mackey, Maggy	23	Simple cyst	R	Yes	No	No	S	Good	S	No	No	No	16 "	No	No	Moderate; transfixed, ligated, and cauterized.	R	
31	" '83	O'Neil.....	48	Multiloc.....	R	No	No	No	M	Good	S	No	No	No	37 "	No	Yes	Broad and short; transfixed, clamped, cauterized, transfixed, and ligated.	R	
32	'84	Dwyer, Marg...	46	Dermoid cyst....	L	No	Yes	No	M	Fair	L	No	No	No	18 "	Yes	Yes	Short; transfixed, ligated, and cauterized.	R	Bone, teeth, hair, etc. Died in 1886.
33	'84	Haggerty Nellie	19	Simple cyst.....	R	?	No	?	S	Good	S	No	No	No	32 "	No	No	Broad and thin; transfixed, ligated, and cauterized.	R	
34	Sept., '84	Riley, Mary....	25	Multiloc. cyst....	L	Yes	No	No	S	Fair	L	No	No	No	27 "	No	Yes	Thick and broad; transfixed and ligated in three sections.	R	

No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Incision.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesion.	Pedicle, Kind and How Treated.	Result.	Remarks.
35	'84	*Emerson!*	33	Double papillomatous cyst....	R & L	Yes	No	No	M	Good	S	Yes	No	No	38 lbs.	Yes	*Yes*	No pedicle; everything ligated and cauterized.	R	Large amount of fluid drained off.
36	Nov., '85	Murphy.....	44	Multiloc.....	R	No	5	No	M	In 1886 Good	S	No	No	No	52 "	No	Yes	Narrow and short; transfixed, ligated, and cauterized.	R	Catamenia ceased two years previous.
37	June, '85	*Rush!*.....	43	Multiloc. cyst....	R	No	Yes	No	M	Died	S	No	No	No	40 "	No	*Yes*	Transfixed and ligated.	D	Death in six days from obstruction of bowels.
38	April, '85	*Piper!*.....	51	Double ovarian..	R & L	No	Yes 5	No	M	Poor. Died 2 mos.	S	No	No	No	4 "	Yes	Yes	Short; transfixed, ligated, and cauterized.	R	Died two months after; cancer of rectum.
39	Sept., '85	Morrill.....	29	Dermoid cyst....	L	Yes	No	No	M	Good	L	No	No	No	18 "	No	Yes	Broad and thin; transfixed and ligated.	R	Surface of uterus sewed over for hæmorrhage.
40	" '85	Patterson.....	37	Multiloc. cyst....	L	Yes	Yes 2	No	M	Fair	S	No	No	No	35 "	No	No	Long; transfixed, ligated, and cauterized.	R	
41	'86	Holland.....	78	Multiloc. cyst....	R	No	Yes 8	No	M	For 1 year Fair.	L	No	No	No	43 "	Yes	Yes	Broad; ligated in four sections and cauterized.	R	Tapped three times. Died one year subsequent.
42	Jan., '86	*Ripkow!*.....	49	Multiloc. cyst....	R	Yes	Yes	No	M	Good	S	No	No	Yes	25 "	No	Yes	Long and narrow, and twisted three times; suppuration commenced; ligated below line of demarkation.	R	Uterine hæmorrhage previous. Ventral hernia subsequent.
43	Aug., '86	Lewis.....	31	Multiloc. cyst....	L	No	No	No	M	Poor	L	No	No	No	22 "	No	Yes	Short; transfixed, ligated, and cauterized.	R	
44	'86	Meehan.....	25	Uniloc. cyst.....	L	Yes	No	No	S	Good	S	No	No	No	26 "	No	Yes	Transfixed, ligated, and cauterized.	R	Peeled out.
45	'86	*Bick, Honora!*..	23	Colloid.....	R	?	Yes 2	No	M	Good	L	No	No	No	27 "	No	Yes	Fair; transfixed, ligated, and cauterized.	R	Dug out before removal. Twenty-two stitches.
46	June, '86	Anderson.....	43	Uniloc. cyst.....	L	No	No	No	M	Fair	S	No	No	No	30 "	No	Yes	Slender; transfixed, ligated, and cauterized.	R	Both ovaries removed. R. ovary diseased.
47	'86	Conroy.....	52	Multiloc. colloid.	R	Yes	Yes 12	No	M	Good	S	No	No	No	26 "	No	No	Broad and short; ligated in three sections.	R	
48	'87	Mitchell, Mag..	13	Multiloc. cyst....	R	Yes	No	?	S	Good	S	No	No	No	18 "	No	No	Broad and long; transfixed, ligated, and cauterized.	R	
49	'87	Muldahl.....	37	Multiloc.....	R	Yes	No	No	M	Good	S	No	No	No	36 "	No	Yes	Long and thick; transfixed, ligated, and cauterized.	R	
50	'87	*Hamilton!*.....	44	Multiloc.....	R	No	Yes 1	No	M	Good	S	No	No	Yes	21 "	No	Yes	Twisted and long; transfixed, ligated, and cauterized.	R	Uterine hæmorrhage and peritonitis previous.

said about the simplicity of the operation. I tried to make it plain that in reference to many other operations that are done in the abdominal cavity it is simple, not in reference to all operations. Surgeons in all parts of the country are doing ovariotomy, and the result is favorable in most of these cases; it must be a simple operation or the results would not be so favorable.

I believe I was right in Dr. Jaggard's case in saying that the technique of Cæsarean section is simple. It is not simple for the patient and never will be. The only reason why it can ever be safe rests in the employment of aseptic surgery. So I believe that laparotomy for simple ovarian tumor, compared with other operations the surgeon is called upon to do in the abdominal cavity, is the simplest.

STATE MEDICAL SOCIETY OF WISCONSIN.

FORTY-SECOND ANNUAL SESSION, HELD IN MILWAUKEE JUNE 6, 1888.

Dr. L. G. Armstrong, of Boscobel, President.

FIRST DAY—Morning Session.

Dr. J. R. Barnett, of Neenah, read a paper on "The Antipyretic and Abortive Treatment of Typhoid and Remittent Fevers." He maintained that the bacillary origin of typhoid fever is so generally conceded that it may be accepted by practical physicians. This affords the basis for a rational search for some antidote to the disease—that is, for some agent inimical to the existence or development of the micro-organism, or elimination of the products of its vital activity and decay, or both. And upon this belief in some infecting microbe as the cause of typhoid fever the specific treatment as it stands to-day has been built.

"Therapeutics of Oxygen" was the title of a paper by Dr. A. J. Hodgson, of Waukesha. He believes that it stimulates the organic activity of the red-blood globules, and can be used in anæmia, albuminuria, all wasting diseases, and dyspepsia. He attributes the sources of failure in its use to, (1) impure gases used; (2) want of proper discretion in the selection of cases; (3) injudicious exhibition; (4) neglect to regulate the personal habits of the patients; (5) neglecting to use rational and necessary auxiliaries; (6) want of due perseverance.

He reported the following case of Bright's disease: The urine showed great profusion of uric acid crystals, and, when boiled, it could not be poured out of the test-tube. By weight there was $3\frac{1}{3}$ per centum of albumen. Countenance was pale, appetite very poor. The patient was given eight gallons of oxygen a day for seven weeks, his condition at the end of that time being as follows: Casts and uric acid had almost entirely disappeared; albumen less than one fourth of one per cent.; countenance much more natural, and he could walk four miles a day, whereas at the beginning of treatment he could not walk more than four blocks without great difficulty. To-day he is in business and feels well.

A report of a case of Calculus Renalis by Dr. R. Zimmerman, of New Cassel, was read by title.

Dr. J. S. Walbridge, of Berlin, read a paper entitled, "Observations on Influenza."

He describes three forms: 1. Those in which the respiratory tract and mucous cavities of the head are principally involved. 2. Those in which the nervous symptoms predominate. 3. Those in which the digestive organs are affected, accompanied by symptoms resembling rheumatism.

The indications for treatment are to relieve distress and support the patent. There are no preventives, no specifics, and expectorants are of but little use. Diaphoretics and anodynes are required in the first stage; quinine, tonics, and nourishment in the latter stages.

FIRST DAY—Afternoon Session.

Dr. Lucy E. Ermine, of Chicago, read a

paper on "Electricity as a Practical Therapeutic Agent in Gynæcology," with a report of its use in five cases.

Dr. E. W. Bartlett, of Milwaukee, read a paper entitled "Otitis Media Purulenta," and exhibited and commended the autophone invented and patented by Mr. J. A. Maloney, of Washington, D. C.

FIRST DAY—Evening Session.

Dr. W. P. Hartford, of Beetown, read a paper on "Catarrhal, or Winter Fever."

In the treatment, calomel in grain doses, repeated every four hours, combined with small doses of Dover's powder, has a beneficial effect. Antipyrin gives great relief for several hours, and may have a beneficial action, especially where there is incipient lung complication. In children with congestion of lungs or capillary bronchitis aconite is admissible, but in cases of lobar pneumonia veratrum is better and much easier. On account of the intermittent character of the fever, quinine would seem to be indicated, but it has little or no effect on the temperature; it does not shorten the attack, and often irritates the already weak stomach.

Dr. Townsend read a paper on "The Summer Diarrhœas in Children."

Deaths from intestinal diseases range from 20 to 25 per centum according to location, 85 per centum of these being in children under five years of age.

Treatment must be divided into preventive and medicinal. We should look first to the surroundings, for bad drainage, bad air, overcrowding, dirt, improper food, and clothing.

Professor Leeds, of Stevens Institute, gives the following formula, which he claims as the nearest approach to mother's milk.

1 gill fresh unskimmed cow's milk.
1 gill of water.
2 tablespoonfuls of rich cream.
200 grains of milk sugar.
1½ grains of extractum pancreatis.
4 grains of bicarbonate of soda.

Put this in a nursing-bottle, and place it into water made so warm that the hand can not be held in it without pain longer than one minute. Keep the contents of the bottle at this temperature twenty minutes, and prepare a fresh lot at each nursing.

SECOND DAY—Morning Session.

Dr. Joseph Schneider, of Milwaukee, read a paper on "Blennorrhœa, Acute and Chronic."

Dr. S. B. Buckmaster, of Mendota, read a paper on "The Importance of a Careful Examination of the Alleged Insane before their Committal to a Hospital."

Almost every person of the present time has some conception of insanity, though that conception is usually of an ideal and exaggerated character.

At the present time there are 3,000 insane persons in the state of Wisconsin.

Of 252 cases admitted to the State hospital in 1887, 38.15 per centum were over 60 years of age. Of 29 deaths during 1887 out of a total of 788 treated, five were between 60 and 70 years of age, and five were over 70.

Dr. J. S. Christison, of Cottage Grove, read a paper entitled "Our Duty to Our Insane."

Dr. James A. Jackson, of Madison, read a paper on "Litholopaxy," with a report of a case.

Dr. G. M. Steele, of Oshkosh, read a paper on "A Clinical Illustration of Localization of Cerebral Function," with a report of a case.

Michael M——, aged 17 years, Norwegian, weight 103 pounds, of slim build, with good family history, except the death of his father from cancer. He was a laborer in a sash, door, and blind factory, and on the morning of July 9, 1887, while cleaning away rubbish from under the table of a machine, he raised his head against a saw of about 9 inches in diameter running at a high rate of speed. The scalp wound extended one-third of an inch to the right of median line, and about one

inch posterior to the parieto-frontal articulation over the parietal eminence and downward, describing two curves, and ending about one and three-fourths inches above and a little in front of the left ear. The wound of the parietal bone measured two and three-quarter inches. An estimate of depth of the wound at deepest point made with considerable care placed it at five-eighths of an inch. The hæmorrhage was profuse, yet the boy was brought to the office something more than a mile distant from the factory. His intellect was undisturbed from the reception of the injury, and he complained only of weakness and numbness of his right hand and arm. This condition of the right arm and hand was felt immediately after injury. The wound was carefully cleansed and dressed antiseptically, the upper portion stiched and lower angle left open for drainage. The next day convulsive seizures, slight and of short duration, attacked the affected arm, and the second day after receiving the injury, the whole right side became involved in those convulsive movements, which were not severe. There were three between 2.30 and 10 p. m., and five between 10 p. m. and 12 p. m. At 1 a. m on the third day, one occurred lasting ten minutes, another lasting seven minutes at 1.45 a. m. The wound, which had closed very perfectly, was reopened, and while it was clean and no discharge could be observed to escape, the convulsions ceased and recovery was rapid, perfect, and without complications.

Chloral and the bromides were used quite freely until the unpleasant symptoms ceased. His right arm by this time was completely paralyzed, but there was no paralysis elsewhere. Complete paralysis lasted only about two days, when improvement commenced, and he enjoyed quite complete use of the extremity in three weeks. He was never unconscious except when in convulsions. He sat up more or less every day; his appetite was good, bowels regular, urine very good. During the period of severe convulsions his speech was thickened and slow. He resumed his work some six or seven weeks following the accident.

Dr. G. W. Jenkins, of Kilbourn City, read a paper on "Puerperal Eclampsia."

Whatever the pathology, remote, or exciting causes, the most important subject to be considered is the treatment, which consists of two classes, *preventive* and *curative*, and the curative into *medicinal* and *obstetrical*. It was his uniform practice to bleed patients after having thouroughly considered the case, and ascertained the general condition of plethora, and the dangers to be avoided by a timely and judicious bleeding, diminish directly the amount of blood, relieving blood pressure, and congestion of the whole system. During an experience and practice of over 35 years he had about 20 cases and had never lost one.

After bleeding, if the convulsions continue, he puts patients upon chloroform inhalations, relieve the distended bladder, unload the bowels by means of free irrigation, and proceed to empty the uterus by first gradually dilating the uterine canal until the hand can enter the uterus, turn, and deliver. He does not wait, but empties the uterus as soon as possible. If convulsions continue after the uterus is empty, he used hypodermic injections of morphine, chloral per rectum, hydragogue cathartics, and attempted to unload the kidneys by means of diuretics.

Dr. H. F. Sercombe, of Milwaukee, said that she had had quite an extensive experience in private practice and otherwise. While in the lying-in hospital in Vienna she had occasion to witness a great many cases. The patients were usually brought to the hospital in an eclamptic condition, and on admission the assistant physician would secure a large bath-tub, fill it as full as possible, without letting the water run over, with water as warm as the patient could bear. It made no difference as to how far pregnancy was advanced, whether

five, six, seven, or eight months. Patients were immersed in this warm water and kept there for thirty to forty minutes. He would then have them wound in heavy blankets, so as to produce perspiration as freely as possible. If the convulsions continued while the patients were being immersed in the bath, he administered chloroform judiciously, and after taking the patient from the bath he would give an enema of chloral hydrate, twenty to forty grains, made into a solution with mucilage. This was the assistant's general treatment. He did not try to interfere with gestation at any time, except where labor was retarded in its progress. There were very rarely more than about six convulsive attacks after the patient was brought into the hospital, and of the twenty-four cases she saw there were only two deaths

Dr. L. H. Hayman, of Boscobel, said: There was one remedy which was suggested to him by Dr. Miller, of Chicago. One of the most valuable remedies, where there is a nervous condition, with headache, and albumen in the urine, was chlorate of potash, tincture of iron, and morphine, given three or four times a day. He found in many cases in which he had administered this remedy it proved very valuable. Some of the cases which were very troublesome, the patients suffering a great deal of pain, irritation, and pressure in the abdominal wall, were relieved by this treatment.

Dr. J. G. Meachem, sr., of Racine, had practiced medicine forty-five years; during that time he had seen a very large number of cases of eclampsia. He had tried, and seen tried, various forms of treatment, and was satisfied that there was no remedy to be compared with blood-letting. He could not recall a single case that had occurred within his memory that recovered where blood-letting was not resorted to.

OFFICERS FOR 1889.

President—Dr. J. R. Barnett, of Neenah.

First Vice-President—Dr. G. D. Ladd, of Milwaukee.

Second Vice-President—Dr. H. F. Sercombe, of Milwaukee.

Permanent Secretary—Dr. J. T. Reeve, of Appleton.

Assistant Secretary—Dr. J. R. McDill, of Milwaukee.

Next place of meeting, Milwaukee.

THE MICHIGAN STATE MEDICAL SOCIETY.

TWENTY-THIRD ANNUAL MEETING AT DETROIT.

The address of welcome was delivered by John Pridgeon, mayor of the city.

Applications for membership were then read by the Secretary, and were all referred to the appropriate committee.

H. O. Walker, M. D., Chairman of the Executive Committee, reported the programme of the meeting, which was accepted.

Dr. George Duffield, Chairman of the Publication Committee, reported that 810 copies of the transactions of the last meeting were prepared, and 500 mailed, at an average cost of seven cents a volume. In consequence of the delay occasioned by the tardy receipt of papers, the committee recommended the adoption of the following:

Resolved, That papers not sent to the Publication Committee, complete, two weeks after adjournment shall not be included in the society's transactions.

On motion, all portions of the report referring to money matters were referred to the Finance Committee, except a provision for binding the report, which was laid on the table for one year. The rest of the report, including the resolution, was accepted and adopted.

W. J. McHensh, M. D.. Chairman of the Committee on Necrology, reported the deaths of Drs. A. B. Palmer and E. S. Dunster, of the University of Michigan, and Douglas A. Joy, of Marshall. He then read the memorial of Dr. Joy, and Dr Conrad George, of the University of Michigan,

read the memorials of the two professors in the State University.

Dr. George Duffield, Secretary of the society, submitted his report, which commenced with a comparison of the status of the society at the last meeting held at Detroit (nine years ago) and at present. At the former meeting there was a membership of 168, of whom only seventy-five were present at the meeting, while now the membership is 275, of whom a very large proportion will be present; still the membership is small compared with the number of practitioners in the State, and earnest efforts have been made and are still making to induce members of the local societies to unite with the State organization.

A proposed amendment to the constitution, offered at a previous meeting, making all active members of the association removing from its jurisdiction eligible to corresponding membership, was put upon its passage and unanimously adopted.

H. B. Hemenway, M. D., Treasurer, reported as his gross receipts $920.26 and disbursements $848.32, leaving a balance of $71.94, but as $100 has been voted and not paid to the "Rush Memorial Fund" there is an actual deficit of $28.06.

The following was accepted us a substitute for sec. 3 article 3 of the by-laws:

"Membership dues shall be $2 per annum, and payable annually. The failure of any member to pay such dues for two successive years shall be reported by the Secretary of the society, and thereupon such delinquent shall be declared, by the presiding officer, suspended from all the rights and privileges of membership therein, except that of attendance upon its sessions; and a failure for five successive years to pay such dues, shall also be, in like manner reported, and the membership of such delinquent shall be declared forfeited and lost: Provided, that one so suspended may be restored to the full privileges of membership by a vote of the society upon the payment by him to the Secretary of the full amount of his unpaid dues.

"All applicants for membership who have forfeited their membership by the non-payment of dues, shall be required to state in their application the fact of such forfeiture."

The President appointed the following nominating committee: Drs. Hitchcock, Kalamazoo; Hoyt West, Detroit; Breakey, Ann Arbor; Raynale, Brighton, and Langlois, of Wyandotte.

Dr. Wade, of Holly, made a humorous speech, protesting against the meetings of sections and against the reading of long papers that interested nobody. He did not come for instructions, but for pleasure, and he wished to see more of the social and less of the scientific element cultivated.

AFTERNOON SESSION.

In the Section on Practice of Medicine, of which A. W. Alvord, of Battle Creek, is chairman, the first paper on the programme, "Is Disease an Entity?" by Dr. C. H. Stowell, of Ann Arbor, was omitted on account of the absence of Dr. Stowell. The papers read and discussed were: "True Principles of House Drainage," Dr. S. P. Duffield; "Undrained Lands Predispose to Phthisis Pulmonalis," Dr. H. F. Lyster; "Tuberculosis, Etiology and Frequency," Dr. J. Flinterman; "The Pathology of Acute Miliary Tuberculosis," Dr Horace Gibbes.

The following papers were presented in the Section on Surgery, Dr. Donald Maclean, Detroit, chairman: "Retention of the Urine Relieved by Supra-pubic Paracentesis of the bladder," Dr. Charles F. Southworth; "A Demonstration in Abdominal Surgery," Dr. Hal. C. Wyman; "A Case of Splenectomy with Subsequent Liberation of the Ligature through the Air Passages," Dr. T. A. McGraw; "Some Eye Affections of the Veneral Diseases," Dr. Flemming Carrow, Bay City.

The Section on Obstetrics and Gynæcology, Dr. George E. Ranney, of Lansing, chairman, listened to and discussed the following papers: "An Address on Obstet-

rics and Gynæcology," Dr. G. E. Ranney; "Curability of Tumors of the Womb Without Severe Surgical Treatment," Dr. C. H. Leonard; "Puerperal Septicæmia," Dr. Charles H. Baker; "Uterine Flexions as a Cause of Anomalous Symptoms in Distant Organs," Dr. W. W. Elmer; "The Therapeutical use of the Pessary," Dr. H. J. Chadwick, and "Experimental Researches Respecting the Influence of Dress as a Cause of Pelvic Disorders in Women," Dr. J. H. Kellogg.

In the evening Dr. McGraw delivered an address at the opera house. One of the first sentences of his address, in speaking of the medical profession, was: "We are too much occupied with our own influence on people to pay sufficient attention to the influence of people on ourselves." He proceeded to show that it is impracticable, owing to national peculiarities, for foreign and more mature systems of medical education to be adopted in American schools. The English mind was too intensely practical; the German too philosophical. American medical and surgical schools are not put in a state of efficiency satisfactory to medical men. The responsibility of their low standard and the lack of equipment in hospitals should be assumed as much by the people as by the medical profession. He denounced the custom of permitting students to begin study in private offices under preceptors who seldom pay any attention to their needs and less to their fitness to practice. The excellence of the German schools was universally admitted, but the American system of training and education, though comparatively in its youth, produces in time results of which the profession and people may be proud. The American schools make their instruction eminently practical.

Dr. George K. Johnson, of Grand Rapids, followed with the annual address on the practice of medicine, his subject being "The Natural History of Disease the Basis of Rational and Scientific Practice."

He set forth that the vast majority of diseases end in return to health of those afflicted; that most sick people will get well when left to the curative influences of nature. He held that drug medication was too excessive and indiscriminate; that with few exceptions, the knowledge of drug action did not warrant prodigality in usage. The present drift was in the direction of conservatism in the use of drugs, although there was a constant flood of therapeutic novelties. The only course for the true physician was to take the law from science only.

The closing feature of the programme was the annual address on surgery by Dr. Geo. E. Frothingham, of Ann Arbor, his subject being "Surgery as an Art and a Science." In a scholarly manner he traced the progress of surgery from the early days when it was consigned to the hands of barbers up to the present time, showing its mighty advances. Rome had gone 500 years without surgery, and then assigned the work to slaves and aliens. Now surgeons occupy the front rank as regards science and learning. With the advance in scientific surgery, operations were much fewer and while in early days fatalities were frequent, the reverse was now the case. The doctor's address was listened to with great nterest, and frequently applauded.

At the close of the exercises the members, at the residence of Dr. T. A. McGraw, were tendered a reception.

SECOND DAY.

The following officers of the association were elected:

President—Dr. S. S. French, Battle Creek.

First Vice-President—Dr. Charles N. Lewis, Jackson.

Second Vice-President—Dr. E. B. Ward, Laingsburg.

Third Vice-President—Dr. Simeon Belknap, Niles.

Secretary—Dr. George Duffield, Detroit.

Treasurer—Dr. H. B. Hemenway, Kalamazoo.

Members of the Judicial Council—Drs. William Brodie, Detroit; F. K. Owen, Ypsilanti, and J. H. Bennett, Coldwater.

The society will meet at Kalamazoo, in 1889.

NATIONAL ASSOCIATION OF RAILWAY SURGEONS.

The committee for making arrangements for a national meeting of railway surgeons met in the city of Fort Wayne, Indiana, on the 15th of May, 1888, and decided to hold the preliminary meeting in Chicago on the 28th of June at 9.30 a. m. Accordingly, the Association convened on the above day, and was called to order by the chairman of the committee, Dr. C. B. Stemen, of Fort Wayne, who briefly stated that the meeting was for permanent organization. The objects of the Association were to bring the surgeons of the different railroads together annually to develop this special and rapidly-growing branch of surgery; to report cases coming under their observation; to relate their experiences; to exchange views, and to discuss the best methods in the treatment of railway accidents and injuries. The meeting was large and enthusiastic, many distinguished railroad surgeons of the United States being present. Sixty-three railroads were represented. The Association starts out with a membership of six hundred and promises to be an active organization.

The morning session was devoted principally to the election of officers.

In the afternoon the following papers were read: Report of two cases of Successful Triple Amputation for Railway Injuries, by Dr. J. B. Luckie, Birmingham, Alabama.

Synchronous Amputation, by Dr. N. C. Lynd, New York.

Report of a case of Simultaneous Triple Amputation with Recovery, by Dr. A. J. Banker, Columbus, Indiana.

First Care and Treatment of Railway Injuries, by Dr. H. H. Middlecamp, Warrenton, Missouri.

Relations of Railway Surgeons and Members of the Bar, Dr. La Grange Severance, Huntington, Indiana.

External Wounds Communicating with Fractures of Bones, by Dr. J. R. Williams, White Pigeon, Michigan.

Report of a Case, by Dr. William C. Caldwell, Fremont, Ohio.

Treatment of Compound Fractures, by Dr. W. L. Buckner, Youngstown, Ohio.

Brakemen's Injured Fingers, by Dr. J. A. Jackson, Madison, Wisconsin.

Fracture of the Spine, with reports of two cases, by Dr. W. C. Henry, Aurora, Indiana.

A Few Points in Railway Surgery, by Dr. W. B. Outten, St. Louis, Missouri.

Violent Injuries of the Pelvic Bones and Pelvic Viscera, by Dr. W. A. McCandless, St. Louis, Missouri.

Dr. OUTTEN said that out of 103 railway injuries caused by the passage of locomotives and cars over the parts attended by him, involving the superior and inferior extremities, excluding injuries of the hands or feet, more than one-third died from shock, and one-tenth died from shock without operative interference,

Dr. J. B. MURDOCK, of Pittsburgh, Pennsylvania, said he had been deeply interested in Dr. Outten's paper, and in discussing railway injuries the important question is whether surgeons should adopt primary amputation, or resort to secondary amputation. He maintained that intermediate amputation was unsafe and dangerous. Military and railway surgeons know that the mortality in primary amputation is much less than in secondary amputation. After the patient had sufficiently reacted from the shock, it was his rule to perform amputation, and the sooner the better, and the greater were the chances for recovery of the patient after the operation.

Dr. H. J. BENNET, of Ohio, had practiced his profession for twenty-five years, and had treated a large number of railway accidents and injuries, but had never used carbolic acid, bichloride of mercury, nor

even a drainage-tube, for in so doing he considered he added to the wound a material that would produce inflammation. He used nothing but pure lint, a plain, dry roller, etc.

Dr. C. B. STEMEN, of Fort Wayne, entered his protest against those who are opposed to antiseptic surgery. Sir Joseph Lister in his teachings has been the greatest benefactor of the present age in advocating antisepsis. Although Lawson Tait, and Bantock may directly ignore it, yet a visit to their operating rooms will convince any physician that they practice it. A person has to subscribe to an oath that he has not been in a dissecting room or attending a person with an infectious disease prior to being admitted to witness their operations.

OFFICERS FOR 1889.

President.—Dr. J. W. Jackson, Kansas City, Missouri.

First Vice-President.—Dr. J. H. Murphy, St. Paul, Minnesota.

Second Vice-President.—Dr. J. B. Murdock, Pittsburgh, Pennslyvania.

Third Vice-President. — Dr. A. W. Ridenour, Massillon, Ohio.

Fourth Vice-President. — Dr. B. L. Hovey, Rochester, New York.

Permanent Secretary.—Dr. C. B. Stemen, Fort Wayne, Indiana.

Assistant Secretary.—Dr. J. H. Tressel, Alliance, Ohio.

Corresponding Secretary.—Dr. E. R. Lewis, Kansas City, Missouri.

Treasurer.—Dr. J. Harvey Reed, Mansfield, Ohio.

Next place of meeting, St. Louis, Missouri.

FOREIGN MEDICAL SOCIETIES.

THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

ANIMAL TUBERCULOSIS IN RELATION TO CONSUMPTION IN MAN.

Thomas Walley, M. R. C. V. S., of the Edinburgh Veterinary College, said: In spite of all the attempts which have been made in the past to minimize the importance of animal consumption in its relation to this fell destroyer of the human race, the fact still remains that in every essential particular the tuberculosis of man and the tuberculosis of animals are identical. The scourge of the bovine species is the curse of the human, as it is also the pest of the feathered tribes.

A few years ago, comparatively, animal tuberculosis received but a scanty share of attention from the members of the veterinary profession in this country, and few in its ranks associated the malady with that most fatal and most intractable of all the diseases to which human flesh is heir; and, whether from the supineness exhibited by the members of the sister profession on this subject, or from the growing enlightenment of the members of the veterinary profession, I cannot say, but assuredly the latter have within the last twenty years taken the most prominent part in bringing the subject of tuberculosis under review.

In glancing for a brief space at the history of the disease, I need scarcely remind you, I think, of the fact that it is almost co-existent with the science of medicine; and probably, if we could look into the ages that were, we should find that its genesis was coeval with that of man.

If it is a fact that consumption in man has always held a prominent place in the literature of the medical profession since medicine became an art, it is equally a fact that the disease has been recognized by various cognomens among veterinarians for genera-

tions and in different countries as being common to animals.

But while English veterinary practitioners and others spoke glibly of "grapes" in cows, or, referring to a well-known symptom (diarrhœa) as "shooters," and to another symptom (sub-maxillary œdema) as "wattles," and while the characteristic growths of scrofula and tubercle were in many of the northern counties of England and in some of the Scottish counties designated and known as "clyers" and "wens"; and further, while the disease was known as "angleberries," and the affected animals themselves spoken of as "piners" or "wasters," still no systematic inquiry into its nature was made by those responsible for veterinary teaching until within the last quarter of a century. In proof of this I may quote the fact that during his admirable course of lectures—the most complete of any that were delivered at that time—Professor Simonds, of the London Veterinary College, did not once refer to the disease during my pupilage in the years 1861–3; and in 1847 there occurs in the professional organ of that day, the *Veterinary Record*, the following remarkable statements, in connection with some comments on what was evidently a case of nodular tuberculosis, which had been brought to the notice of the editor by a practitioner, Mr. W. Cox, of Ashbourne. The statements are: "The tumors attached to the viscera of the thorax of a cow are similar to some we have occasionally met with"; and, "On this subject our English veterinary authors are silent, and we believe the above to be the only case of the kind recorded."

In 1872 I had the privilege of reading a paper on this subject at a meeting of the West of Scotland Veterinary Medical Association, which was held in Glasgow; and again, in 1879, I included the disease in the book entitled *The Four Bovine Scourges*. On various occasions since the issue of that book I have brought the matter before the profession. During the period mentioned, other members of my profession have written upon and publicly noticed this subject, and for some years there has been, practically, unanimity among us as to the danger of transmission of the affection from animals to man. On the Continent the dangerous nature of tuberculosis was recognized at a very much earlier period than here, and we are told (*vide* Lydtin, Fleming, and Van Hertsen, on "The Influence of Heredity and Contagion in the Propagation of Tuberculosis") that in the Mosaic laws special provision was made for the condemnation of the flesh of animals suffering in the advanced stages of phthisis.

The promulgation of the opinion by Laennec that the existence of tubercles was always associated with a caseous centre in some organ or other of the body, was a vast stride towards the realization of its exact causal relationship. Then came the declarations of Villemin, founded on extended experimental inquiry as to its infectious character; and following on this, I think I am correct in saying, that the doubt cast upon the nature of the disease, in animals at least, by the use of the term lympho-sarcoma by Virchow, was the means of temporarily arresting the progress of the realization of an exact knowledge of its pathology, and, I may say also, of checking the realization of the intimate relationship existing between the tuberculosis of man and animals.

In Cohnheim's celebrated dictum, "That that which is of tubercular origin can alone originate tubercle," we had sounded the key-note of a great discovery; but it again was obscured to some extent by the declaration of Sanderson and others, that tuberculosis could be produced by inoculation with many and diversified pathological products. It remained for Koch to place the crown upon the edifice of our knowledge as to the specific nature of tuberculosis, though even his grand work had been foreshadowed to some extent by other inquirers. So far as I am personally concerned, I arrived at the conclusion at an early period of my professional career, *that tuberculosis was a specific disease;* and

in the essay prepared in 1872 occurs the following remark: "Tubercle is as much a specific disease as is syphilis, or any other affection depending for its continuance (existence) in the system upon a morbid poison or principle." Again, in *The Four Bovine Scourges*, p. 150, "In whatever way I consider the character of tubercle as tubercle. my mind always reverts to the same conclusion, viz., that tubercle is as much a specific disease, whether inherited or acquired, as glanders, syphilis, or any other affection of the kind with which we are acquainted."

Long before Koch's discovery, or rather his recognition of the tubercle bacillus, veterinary surgeons were acquainted with the fact that the tubercular nodules, so universally met with in the lungs of sheep, were simply a pathological expression of the effects of a parasitical irritant in the shape of the embryo of the Strongylus filaria; and it would have only been a logical sequence had some one who had carefully considered the matter arrived at the conclusion that the cause of tubercle as tubercle was an irritant; that that irritant was an organized entity in the shape of a bacillus, or that the irritant had some connection with such an organism—a secretion or product thereof, perhaps; that the irritation so produced established a localized exudative inflammation followed by a formative process, which, however, only attained to a certain degree of perfection; and, in consequence of the continued irritation and of the imperfect nature of the cell structures produced, that it was followed by a retrograde change which culminated in the recognizable caseous and calcareous products with which we are all so familiar.

Not only would such a line of reasoning have led us to the discovery of the true nature of tuberculosis, but it would have shed a flood of light upon much that was obscure in reference to the nature of glanders, actinomycosis, and other forms of that group of diseases now classified as the infective granulomata. Moreover, it would have been the means of leading us to discard, at an earlier period than we did, the, to us, distinctive terms "gray," "yellow," and "infiltrated" tubercle—terms which of themselves signified only the features presented at different stages of its growth of one and the same product. And even if it had not justified us in preserving a strict adherence to the expression used by myself in *The Four Bovine Scourges* to the effect "that tubercle is a visible local manifestation of a constitutional diathesis (scrofulosis)," it would at least have led to the iquiry, What is the essence of scrofula?

In order that the members of this society may the more readily realize the intimate connection which exists between animal and human tuberculosis, it is advisable that I should consider at the outset some questions of a general nature, such as the species of animals most liable to tubercle, the means by which it is propagated, the organs affected, its course, its effects on the system, its macroscopical characters, and its complications.

(1.) *Species of Animals Affected.*—It is universally acknowledged that the members of the bovine species are pre-eminently the hosts of tubercle. In them it has been thought to be indigenous, though why bovines should be more predisposed than other animals is not easy of explanation, except perhaps the fact that their complicated stomach may afford a resting place for the bacilli, or that there may be some element in the bovine constitution favorable to their support—in other words, that the doctrine of *receptivity* applies in this case more powerfully than in that of animals of other species. Looking at the fact that the sheep bites more closely to the ground than does the ox we should be inclined to think that ovines stood a greater risk of ingesting the viruliferous principle with their food than do bovines, but it is a most remarkable fact that the former are seldom found to be the subject of naturally contracted or spontaneous tuberculosis. Indeed, I may say that of all the domesticated

or semi-domesticated animals whose flesh is used for human food the sheep stands out from the group as the one least liable to tubercle; and this is all the more remarkable seeing that this animal is so intimately associated in many cases with cattle and with rabbits, a creature pronouncedly predisposed to, and very largely the subject of, tuberculosis.

Koch's discovery of the tubercular bacillus has, as I have before remarked, given us a more accurate basis upon which to found a diagnosis; and several Continental pathologists, notably Johne, have within the past few years discovered its existence in the lesions of so-called lymphadenoma; while, during the past year my colleague, Professor M'Fadyean, demonstrated the bacilli in what appeared to be lymphadenomatous nodules in the spleen of the horse.

Of poultry, tuberculosis claims a holocaust of victims, and macroscopically it presents in these animals some remakable divergences from the recognized characters of tubercular products in the ox and in man. My first intimate acquaintance with avian tuberculosis was about the year 1865; but several years prior to that date I had seen cases which to the naked eye presented features closely analogous to the disease, and that more particularly in the rook.

Amongst the semi-domesticated amimals the rabbit takes the foremost place as the host of tuberculosis.

As a boy I was accustomed to see myriads of tubercular nodules in the livers of rabbits, and so much was I impressed by the fact, that in the essay already alluded to as having been read by me in 1872, I suggested that there was a possibility of contamination of pastures by the fæcal matter of these animals. Guinea-pigs are especially predisposed to tuberculosis—at least by artificial infection—and the same may be said of monkeys, in which animals the lesions approximate perhaps more closely to those seen in the human subject than they do in any other animal.

The propagation of tuberculosis is effected in a variety of ways—by congenital and hereditary transmission, by ingestion of contaminated foods or water, *i. e.*, naturally or experimentally; by natural or experimental inhalation, by accidental and intentional inoculation, and by intravenous injection.

The possibility of congenital transmission of tuberculosis occurring was for a long period denied, but there are those amongst human pathologists who believe in such a possibility, and who assert that it does occur, while veterinary pathologists have at different times adduced practical facts in proof of such a possibility. It has not as yet fallen to my lot to witness congenital tuberculosis, but I have seen it in animals at such an early age as to lead me, perforce, to the conclusion that it must have had an *intra-uterine* origin.

Mr. M'Gillivray, of Banff, has put on record evidences of the fact that congenital transmission takes place, and some six years ago I received a communication from a late pupil of my own, Mr. Frank Ashley, giving me details of some cases in a valuable herd of shorthorns, which were under the care of Mr. Carter, of Guildford, and in which young calves developed symptoms of tubercular meningitis and pulmonary tuberculosis within a few days after birth. Why doubt as to the probability of such transmission taking place should be entertained in view of our knowledge of the existence of tubercular orchitis and oöphoritis in animals, and of the existence of bacilli in the blood, with the ready transmission of the anthrax bacillus (a much larger bacillus than that of tubercle) from the mother to the fœtus, I cannot understand. Several years ago a lady of my acquaintance purchased a setting of eggs from a poultry-yard which I knew was infected, and shortly after the birth of the chickens they showed evidence of the existence of the disease, and very quickly the other poultry on the premises became affected.

As to hereditary predisposition, the fashion at the present day in human medicine seems to be to explain the fact by assuming that the systems of certain individuals—on account of family peculiarities—offer a more favorable soil for the development of the bacillus than do the systems of others. This hypothesis, to my mind, is a convenient way of explaining an unpleasant phenomenon, viz., that family after family is swept off the face of the earth by this fell malady; but I confess I cannot understand why such a theory should be accepted in face of the many and palpable proofs to the contrary one meets with in one's intercourse with individual families.

I am well aware that the question—a most difficult one to answer—may be asked, What becomes of the virus during the years that intervene between the birth of individuals and the development of the visible manifestations of tubercular lesions in their systems? You acknowledge the possibility of syphilitic lesions being developed in children in whose systems a hereditary taint exists; is the causal entity so widely different in these diseases as to preclude the possibility of hereditary transmission in the one if you acknowledge that it can take place in the other? I grant it is difficult to understand in what particular tissue or organ the bacilli or their spores reside in a quiescent manner for prolonged periods, but when we observe the same process going on in the case of the virus of rabies, the difficulty is not so great. In the calf I have seen scrofulous lesions in the thymus gland, and scrofulous processes are common in the lymphatic glands of these animals as they are in human juveniles. May not the bacilli or their spores be imprisoned in the structure of these glands, and retain their vitality and power of reproduction until some circumstance favorable to their admission to the general system arises?

Propagation by ingestion has for long, thanks to the united labors of human and veterinary pathologists, been an established fact. Not only has the disease been propagated by the ingestion of its products, but also by the ingestion of the secretions of affected animals; and not only this, but it has been shown that a tolerably high degree of heat does not always insure the inocuity of such an important animal product as milk. This method of propagation, it has been abundantly proved, is effected between animals of different species, as from the cow to the pig, and from the former animal to the common fowl; and in addition to this, we have recently had several strong statements made as to the probability of human infection by the ingestion of improperly cooked animal food, especially that of poultry. I have already alluded to the suggestion thrown out by myself in 1872, to the effect that cattle may become infected through the medium of pastures contaminated by the fæces of tuberculous rabbits; and an observation has been made by several veterinary surgeons and by stock-owners to the effect that every animal confined in a particular and contaminated stall in particular byres became sooner or later a victim to tuberculosis. By some it has been thought that infection takes place through the medium of the lungs in these cases, but the majority of observers agree in attributing it to the ingestion, by licking (a habit common to cattle) of the dried sputa from the manger or other surroundings of infected occupants of the stalls, or by the ingestion of contaminated foods. Reference to this matter leads me to offer a remark on a very misleading statement made by human pathologists, and made by one medical man very recently (Dr. Handford in the *Lancet*), to the effect that in pulmonary phthisis of animals there is no sputum. As I pointed out in a subsequent issue of the *Lancet*, this statement is one of many exposing lamentable ignorance on the part of many medical men as to the clinical phenomena of disease in animals.

Granted that animals do not eject sputa at will, and in such unnecessary profusion

as is seen too often to be the case in man, the ox and the dog do on occasion readily expectorate; and independently of this, the materials which in man would be got rid of by expectoration are passed out of the bronchial tubes by the nose, or after being coughed up into the fauces are swallowed, and ultimately passed out with the fæces to lie upon and contaminate the food, the litter, or, in the case of cattle, the pastures.

In the matter of the propagation of tubercle by the medium of the drinking water, if we acknowledge that it may be propagated by the ingestion of solid, there need be little difficulty in accepting the dictum that it may be propagated also through the medium of fluid ingesta.

At a meeting of the National Veterinary Association held in London in 1883, Mr. Olver, F. R. C. V. S., of Tamworth, expressed an opinion to the effect that a number of the cattle in his neighborhood contracted tubercle by the ingestion of sewage matter from the town.

I have myself seen one instance in which the circumstances connected with the death of a number of young cattle pointed to infection by contamination of the drinking water with sewage; and in March, 1886, I received from Mr. Menzies, M. R. C.V. S., of St. Austells, sections of the lungs of an ox affected with tuberculosis, and at the same time a communication from that gentleman in which he stated that not only the feeding bullocks, but the milch cows also on a particular farm in his neighborhood were found on examination to be the subjects of pulmonary tuberculosis; the water supply in this case was constantly contaminated by the liquid filth from the farm-yard and other places. Independently of contamination by sewage matter, both drinking water and food may become fouled by the urine and the uterine discharges of infected animals.

Propagation by inhalation has passed out of the region of speculation; it is now shown that, experimently at least, its accomplishment is certain. I do not myself see that there need be any question as to such a probability, seeing that the expired air from the lungs of tuberculous animals as well as from the lungs of man must often be laden with bacilli or their spores from the softened products of bronchopneumonic vomicæ; but independently of this, there can be but little doubt that particles of dried sputa and other contaminated animal products, are liberated by friction and other forces into the atmosphere and become inhaled by animals.

Infection by inoculation of various products from the bodies of infected into those of healthy animals has been abundantly proved by numerous experimenters, more especially since the publication of the result of Villemin's labors; and the same may be said of subcutaneous injections, injections into cavities, and intra-venous injections; tubercular products in all stages of development and retrogression, the juice of the muscles, milk, urine, saliva, and blood have each and all been used in the successful transmission of the disease; and one experimenter (Toussaint) tells us he has succeeded in transmitting it by using the fluid developed in the vesicles of vaccinated tuberculous calves.

Probably there is no more interesting or instructive subject in connection with the malady under consideration than the transmission, re-transmission, and inter-transmission of the malady by the means above noticed. From man to nearly every species of animal, from one animal to another of the same species, and from animals of one species to others very differently constituted, has the interchange been successfully carried out; and if the resulting lesions have not always borne an absolute resemblance to their prototypes, they in this respect only stand on the same level as do the remarkable divergences in the lineaments of the countenances of closely related men and women.

The most important part, however, of this branch of experimental inquiry seems

to me to lie in the probability or otherwise of the secretions from organs (healthy in themselves) becoming contaminated by the virus in the case of animals suffering from tubercular disease in other organs of the body. When general, *i. e.*, blood infection has taken place one can see that there exists more than a probability that the secretions generally will become contaminated —though this is, in my opinion at least, by no means necessary. Saliva is sometimes infective, but I have yet to see the first case of tubercular disease of any of the salivary glands. Milk is frequently infective, but I entertain (very strongly) the impression that it only becomes so when the udder is the seat of tuberculous lesions; but to this question I shall revert hereafter.

Organs and Structures affected in Spontaneous Tubercle.—In the ox the lungs, the liver, and the serous membranes are most largely the seat of tubercular lesions, and in reference to the abdominal and thoracic serosæ, it is thought that they are sometimes primarily affected; but I think if a careful search were made some pre-existing visceral lymphadenous focus would be found.

Meningeal tuberculosis (either cerebral or spinal) is, in my opinion, always secondary in cattle, though there are some authorities who hold that it may be produced by inhalation via the nasal chambers and the ethmoidal cells.

While allowing that serous membranes become involved by continuity or contiguity, it is to me a remarkable fact that there seems to be but little or no tendency to extension therefrom to invested organs or *vice versa*. Pounds of tubercular products are formed in and upon the peri- and the epi- cardium, upon the pleura and upon the peritoneum, without a trace thereof existing in the organs they invest; and though I do not deny that eccentric extension may take place as from the bowels, liver, or uterus, to the peritoneum, or from the lungs to the pleuræ, I have no hesitation in asserting that this method of extension is, in animals at least, extremely rare. I have seen cases of cerebral with meningeal, and of spinal with meningeal tuberculosis, but it would be difficult to assign the order of precedence in either case.

Extension from the parietes or the parenchyma of organs to mucous membranes is very common. Thus we see bronchial secondarily to pulmonary tuberculosis; but curiously enough, I have never yet seen hepatic lesions involving the mucous lining of the biliary canals, though the reverse holds good in the case of the udder and the lacteal and galactopherous sinuses.

Extension to arteries from the surrounding structures is probably never seen.

Extension to veins takes place both in the case of the pulmonary and hepatic.

Of the different glands of the body the lymphatics, especially in the ox and pig, hold pre-eminence in the frequency with which they are the seat of tuberculous lesions, and particularly does this apply to the bronchial and mediastinal groups.

The mammary glands, both of the cow and of the sow, are frequently the seat of tuberculosis, and while in the main the lesions are confined to the acini, irruption on the mucous membrane is of tolerably frequent occurrence.

Of the blood glands it may be said that while the thymus is occasionally affected, the thyroid bodies are seldom, if ever, involved; and it is a remarkable fact that the spleen is, in the ox, but very rarely the seat of tuberculous lesions, though it is more commonly affected in the pig, and, as before stated, some of the nodules we used to consider as a part of lymphadenoma in the spleen of the horse are of tubercular origin, and probably this is true also of the spleen of the dog.

Tubercular orchitis is frequently met with in the bull and in the boar, though I have not often seen it in birds. The testicles of the ox and of the boar sometimes attain an enormous size.

Tubercular oöphoritis is of common oc-

currence in cows; it is a frequent cause of nymphomania in these animals, and cows so afflicted are universally known as "bullers."

To tubercular metritis I have already alluded, and have remarked that the lesions seem most largely to have their origin in the sub-mucosa in which we sometimes find comparatively large cavities containing caseous matter or pus. Localization of the lesions in this organ is a frequent cause of abortion in cows, while involvement of the cervix uteri produces one form of scirrhous os.

Tubercular vaginitis is only very exceptionally seen; indeed I may say I have only met with one good instance of the lesion here.

Tubercular nephritis is also, comparatively speaking, common in cattle, the organs sometimes attaining an enormous size. Tubercular cystitis is not often seen, and when it does exist the lesion is usually localized in the cervix, while tubercular urethritis is still more rare.

Passing to the alimentary canal, we find that spontaneous tuberculosis of the mouth, the tongue, the fauces, the pharynx, and œsophagus is extremely rare, except in young calves, in which it can be readily induced, at least in the mouth, fauces, and pharynx, by the ingestion of infective milk. In the ox the three first compartments of the stomach are never affected, and the true stomach but rarely. In the stomach of the pig it is more frequently seen, and also in the crop of the fowl. The small bowels of the ox and of the pig are sometimes the seat of tubercular lesions, the large rarely; but intestinal lesions are very common in poultry and in birds, though their character differs materially from that of similar lesions in the bowels of other animals.

In the respiratory tract we find that the nasal mucous membrane and the chambers are sometimes the seat of tuberculosis in the ox. While in poultry the nostril is one of the most common sites—and the yellow, croupous-like exudate, so characteristic of the affection, is as also in the case of the mouth, pharynx, conjunctiva, and even the external aural canal, frequently confounded with and spoken of as diphtheria and croup.

In the larynx not only do we see the development of large tuberculous tumors, which are occasionally pedunculated, but we frequently see distinct ulcerations and vegetations, though one medical pathologist has gone so far as to claim that the absence of laryngeal, tracheal, and bronchial ulceration in animals is one of the characteristic differences between animal and human tuberculosis. Undoubtedly bronchial and tracheal lesions, especially ulceration, are in most cases secondary to pulmonary. They are, however, occasionally seen independently of such lesions.

In the lungs, the tubercular processes resemble in their distribution and in their characters those with which you are all familiar as occurring in the lungs of the human subject; it is sufficient for me here to say that there is not one single lesion discoverable in the lungs of man that has not its parallel in these organs in animals.

The structure of the heart is marvelously exempted from tubercular lesions, and while I have occasionally seen evidence of circumscribed interstitial lesions, I have only once seen the cardiac muscle the seat of tubercle, and even in that case the lesions were not very characteristic.

Tubercular myositis, as affecting the voluntary muscles and as an independent lesion, is of extreme rarity.

Tubercular ostitis is of comparative frequency, as is also arthritis, but the latter is in the majority of instances, secondary to the former.

Cutaneous and subcutaneous lesions are rare in mammals, except in association with the softening processes which go on in underlying organs, such as lymphatic glands, bones, and joints.

The comb and wattles of the cock, and now and then of the hen, attain an enormous size, become hard and unyielding,

and on section masses of the yellow exudate already alluded to are exposed. A similar condition occurs in the foot, producing deformity of that organ, and occasionally being associated with the formation of superficial ulcers on the plantar surface, through which the softened products are discharged.

In practice, we frequently find that in pregnant cows a halt in the onward march of the disease is called, but its progress again proceeds with redoubled speed after the act of parturition; and so, too, after œstral excitement has subsided.

When acute processes are in the ascendency, the febrile state becomes marked, a temperature of 105°–107°, or even 108° Fahr., being frequently reached and maintained for days or even weeks; and as a result of this, rapid emaciation sets in and there is marked interference with the normal functions, with the exception (in many instances) of one, and that unfortunately the most important, viz., lactation.

Lastly, we not infrequently find that these acute symptoms subside, and the animal is apparently restored to perfect health and may become extremely fat. Subsequent investigation shows that the tubercular processes have been arrested or become obsolete. The clinical phenomena depend upon the organs involved.

In their macroscopical characters the tubercular lesions of the lower animals are in the main the counterpart of those with which you are familiar in man.

Milk is undoubtedly the medium through which transmission is most likely to take place; and judging from the numerous experiments which have been made, both by ingestion and inoculation, there can be little doubt as to the frequency with which it possesses viruliferous properties.

The results obtained by Professor Bang in reference to the action of heat on the bacilli are similar to those obtained by other authorities, and show how little dependence there is to be placed on the supposed disinfective properties of such a degree of heat as most people are likely to apply to milk they are about to use for dietetic purposes.

Professor M'FADYEAN: The proofs of the identity of tuberculosis of man and tuberculosis of the lower animals are overwhelming. I think it may be said to divide itself naturally into—*first*, the experimental evidence; *secondly*, the histological evidence; and, *thirdly*, the evidence relating to the identity of the bacilli which modern methods enable us to discover in all tubercular growths. With reference to the first of these—the experimental evidence—I think that it is absolutely conclusive. There is but one step wanting, and that is simply that nobody has deliberately and of set purpose communicated tuberculosis to human beings by giving them tubercular flesh. With reference to the histological evidence, comparison of the minute structure of bovine tubercle with that found in the human subject certainly of itself would to me almost establish the identity of the two lesions. In particular organs of bovine animals there are types of tubercular structure that one does not often meet with in human organs. That is true principally of the chronic tubercular growth which is found so commonly in connection with the serous membranes of the bovine animals; but in these animals when an acute tuberculosis is set up, then the lesion—as, for example, the structure of the tubercle which is formed in the lung—is absolutely identical with the tubercle which is formed in the human lung. The same applies also to the tuberculosis of horses. I am not sure that an examination of the histology of the so-called tuberculosis of fowls would afford very strong evidence as to the identity of that with human or bovine tuberculosis. All the specimens that I myself possess of avian tuberculosis exhibit very considerable difference—for example, I have not in any of the specimens I have yet examined found giant cells in the lesions. With regard to the identity of

the bacillus, I believe that the evidence accumulated on that head is sufficient to show that there is no recognizable difference in the characters of the tubercle bacillus when obtained from growths from bovine animals and when obtained from a human being. There is hardly any force at all in the objection which Klein urges regarding the difference of size of the tubercle bacillus as found in man and in animals. Klein himself points out that the bacillus of anthrax exhibits a very considerable difference in size when taken from different animals, and only a few pages further on he cites this difference of size of the tubercle bacillus as being evidence of the non-identity of the tubercle bacillus of men and animals. I think, then, that it must be held that it has already been abundantly proved that tuberculosis of animals and that of the human subject are identical; and it therefore is of the utmost importance to consider what are the dangers and what likelihood there is that tuberculosis of the lower animals may be communicated to human beings. That danger appears to exist, in the first place, in connection with the consumption of tubercular food, and, in the second place, in the consumption of milk from tubercular cows. I have been collecting all the udders I could get. About two years ago I procured a specimen of tuberculosis of the udder of the cow; the animal was in prime condition, and yet almost any section taken from that udder reveals the tubercle bacilli in inconceivable numbers. That cow was giving milk up till the day of slaughter, and it was not killed for disease, but because it was in a condition regarded as prime fat.

Dr. WOODHEAD: In the first place, I should like to say a few words as to the identity of the condition in man and in animals. I know that Klein insisted, as you have already heard, on certain differences between the bacilli as found in man and as found in cattle. Now, in order that I might try to convince myself, I took a series of specimens from human and bovine organs, in which the bacilli were treated in exactly the same way. I examined these specimens carefully, and I then asked several of my friends to examine them, and to tell me, if they possibly could, which was from man and which was from the cow. In almost every case it was found to be absolutely impossible to distinguish between them. Klein says that the bacilli are a third less in bovine tuberculosis than they are in man. Now, I found that it was impossible—even using very high powers—to distinguish the one from the other. There might be slight differences, but equal differences occurred in the same specimen. Then, too, when I was doing this, I also examined for the position of those bacilli, because Klein holds that there is a very distinct difference in the position of the bacilli in bovine and in human tuberculosis. He holds that the majority of bacilli are in the cells in bovine tuberculosis, and that they are between the cells in human tuberculosis. I find that other authorities have taken this up—Dr. Sutton among others, and, of course, Koch, from whom a great part of our information on this subject is derived—and these authorities distinctly say that in both human and bovine tuberculosis, you may find the bacilli both in the cells and in the spaces; and as a matter of fact, that is so. Klein, in a series of experiments reported to the Local Government Board in 1886, gives the action of bacilli taken from a human subject and inoculated into fowls; also taken from a cow and inoculated into fowls and into guinea-pigs; and also from fowls to guinea-pig; and he finds the following state of affairs—that you can inoculate fowls with tubercle taken from a human subject. In the same way you can inoculate from a guinea-pig to a cow, but when you begin to cross these—that is, when you begin to inoculate from a cow to fowls—then your experiments break down. Now, in connection with this, I should like to draw attention

to one fact. Koch, in his classic experiments brought out this point very strongly —that you can cultivate tubercle bacilli at a temperature of 86° to 105°, but that beyond these limits it is exceedingly difficult to get a growth of tubercle bacilli. Now, this appears a somewhat important fact, when you come to consider the temperature of the animals on which you are experimenting. For instance, one could readily understand that you can modify the virulence, the activity of these bacilli and their power of growth. If you can modify these outside the body by temperature, you can also to a certain extent modify them by the temperature in the animals. I asked Professor M'Fadyean to-day to give me the normal temperature of some of these animals. I took a note at the time. In the cow the temperature is 101° to 102°. In the hen—and this is subject to correction—it is from 104° to 105°. In a calf about 103°; pig, same as cattle; and horse, 101°. Now, it appears that if you could only inoculate fowls with human tuberculosis—and you cannot transmit from the cow to the fowl or (probably) from the fowl to the cow—it would appear that temperature might have a very important effect on the vitality, not perhaps immediately, but on the virulent power of these bacilli. By increasing the temperature of the subject, you might diminish the power of growth and of attacking the tissues possessed by these bacilli. Of course this is only in connection with the experiments carried out, and as a partial explanation at least of what may actually take place. Then as to the transmission of tuberculosis from the bovine subject to the human subject. Principal Walley has already told us that calves are subject to tubercular ulceration of the first parts of the alimentary duct. Now, when Professor M'Fadyean and I were working at this subject, we happened to come across a series of cases in a very localized position. We had to do with a dairy in which we found evidence of tuberculosis in the udders of three cows. These three cows were giving milk, and this milk was going into a large establishment, and it was going into this establishment only. We found that in this establishment the death-rate from phthisis was in one year 40 per cent., and in another, 30 per cent. of the whole deaths. At the same time there was a series of experiments going on which were useful to us, although not so useful to the people who were carrying them on. The pigs were being fed with the milk from these same cattle, and these pigs were—a large number of them—suffering from what was evidently a tubercular condition of the lungs; and we learned that a number of these pigs were killed, and the most beautiful tubercle was found in the lungs, in the pleura, and in one or two instances in the small and large intestines. Now, these pigs were being fed on the milk from this cow-house, whereas other pigs, which otherwise were under the same conditions—the only exception being that they did not get the milk—escaped tuberculosis. These experiments were partly carried on before we went, and were continued after we left, but the pigs had the milk supply cut off simply as the result of our visit; and as a result of this, the pigs brought up in the same place afterwards escaped tuberculosis. It has been mentioned that tubercular cattle do not necessarily give tubercular milk. I think that Professor Bang has modified his position very greatly since the Copenhagen Congress, because at that time he held very strongly that it was not necessary that the udders should be tuberculous at all in order that bacilli should be found in the milk. In almost all these experiments, where tubercular infection has been brought about through tubercular milk, it has been found that the udder has been affected, whereas in those cases where the results have been negative, irregular, or doubtful, sufficient attention has not been paid to this point; and in many cases the udders were undoubtedly not

tubercular. Then there is one objection which is often raised, as to the identity of tuberculosis in the human subject and in cattle. It is held that in woman tubercular mammitis is extremely rare; Dr. Cathcart has given me a reference to eight cases. In cattle it is of common occurrence. I think, however, that here we should take into account the fact that lactation in cattle is carried on under very different conditions from what it is in woman; we know that lactation is prolonged very much longer in cattle—that is, in proportion to the time required—than it is in woman, and consequently the mammary gland is under conditions certainly not favorable to health, or at least very great strength. There is practically a very great over-development of the glandular function. In connection with this I examined a series of glands from a tubercular udder, and I was astonished not only at the enormous amount of tuberculosis, but also at the very great rapidity with which it grows. With reference to the extension from the ovaries along the Fallopian tubes, it is rather curious, but true, that one month I had only six autopsies in the Sick Children's Hospital, and in three of those I found tubercular affection of the Fallopian tubes secondary to tuberculosis of the abdominal cavity. In one of these only, was there any affection in the ovary itself; in the others the tubes were affected without any affection of the ovaries.

Dr. JAMES: The question is, in our efforts to prevent consumption, what can be done by stamping out? Now, I for one, as the result of my study, believe that the stamping out is not of the very great importance which some attach to it. In different animals, if I understood Principal Walley aright, tuberculosis is commonest in the bovine species; but in horses, I think, it is not so common. I am of opinion that it is rather due to the different lives led by these different animals. The cows are kept in the byre and the horses get plenty of exercise. The conclusion that I draw from the whole matter is, that the germ is practically ubiquitous, and when the question is put before me, are we to benefit our fellow-mortals by attempts to stamp out tuberculosis just as we can stamp out small-pox or scarlet fever? I am inclined to say that we cannot expect much in this way. I believe, as the result of my study of phthisis in man, that if you killed every tubercular animal in the country, and banished every phthisical patient, you would have as bad a set of conditions subsisting in another six months. You must deal with tuberculosis, not so much by stamping it out, as with rabies or scarlatina, but as with insanity or cancer, by improving the general conditions. The practical point, therefore, is to stamp it out to a certain extent; but to remember that our efforts would altogether fail if we did not pay more attention to the sanitary conditions of the places where they keep those animals. I believe if the byres were better looked after, and if cows, instead of being tied up in byres all day, were taken out for exercise like horses, we would be doing more to get rid of the mischief than by attempts to stamp it out, because, as I said before, the bacillus is practically ubiquitous.

EXTRACTS AND ABSTRACTS.

THE UNSUITABILITY OF SILVER TUBES FOR TRACHEOTOMY.

Docent Dr. St. Szcz. Zaleski, of Dorpat, says that four or five years ago, while working in the Chemical Institute of the University of Dorpat, the assistant in the surgical clinic came with the remains of a silver tracheotomy tube, which had been left in for about two years without having been withdrawn or cleansed. Of the tube there only remained, owing to the solvent action of the contents of the air passages, the merest shell, in appearance like a kind of coarse cobweb. Thin, rough, uneven, sharp-edged portions were connected by

silver threads, and it was surprising that the whole had hung together as well as it had done, and that a tube so nearly destroyed had not given way and caused the patient to die from asphyxia, or from injury of the air passages. The silver had been dissolved by the secretions of the bronchi and trachea, and had the tube been allowed to remain much longer, there can be but little doubt that no part of it would have been left.

He explains the chemical process by which the metal was dissolved by the continual action of the chlorine that exists in almost all the secretions of the body, and that is at times abundantly present in the mucous glands, upon the metallic silver which thus becomes converted into chloride of silver, this in its turn, although a very stable substance, being acted upon and dissolved by the alkaline secretions, which contain ammonia and cyanides, in the same way as the sulpho-cyanide of potassium of the saliva has the power of dissolving chloride of silver. This dissolved silver is of course partly expectorated, but part probably is absorbed. It may be that it goes directly to form organic compounds, or these may be reached by indirect means.

He does not know whether this patient suffered from argyria, but as soon as possible afterwards he performed tracheotomy on a cat, and inserted a silver biliary fistula tube, which was allowed to remain until the animal died a month later. By carefully weighing the tube before and after the operation, he found that it had sustained a very appreciable loss, the original weight, which was 1.9892 gramme, having been reduced by 0.0056 gramme, so that it had lost 0.282 per cent. of its total weight. It is thus quite evident that not only silver pessaries in the vagina, or silver tubes in biliary or gastric fistulæ, but silver tracheotomy tubes in the trachea, can be dissolved, the metallic silver being taken up by the fluids of the body.

Two questions present themselves: (1) To what extent is such a gradual wearing away of silver detrimental to the organism; and (2) what substance can best be substituted for silver in the construction of tracheotomy tubes? As regards the first question, we know that the long-continued and constant internal, and even sometimes external, use of silver preparations in very small doses ultimately produces argyria, which, as both clinical experience and experiments on animals teaches us, is a very serious and incurable disease. In the well-known case published by Orfila (who first described argyria), the use of nitrate of silver for eighteen months was followed, not by argyria merely, but by death.

In the case described by Fromman the gray discoloration of the skin occurred after ten months' treatment, during which period the patient had taken altogether 104.51 grammes of the nitrate, equivalent to 66.39 grammes of metallic silver. Riemer also published a case in which the patient became affected after thirteen months' treatment. During this period, he had taken 2,900 pills containing 17.40 grammes of the nitrate, or 21.61 grammes of metallic silver; death following after the consumption of 5,672 pills, which contained 34.032 grammes of nitrate, or 21.61 grammes of metallic siver. Finally Dittrich published a case in which toxic symptoms came on after six months' treatment of a tabetic patient, after he had taken 1.83 grammes of the nitrate (10 milligrammes daily), or 1.16 grammes of metallic silver, the patient succumbing at the end of two years of this treatment after having taken 7.32 grammes of the nitrate—equivalent to 4.69 grammes of metallic silver.

It will thus be seen that the manifestation of the deposition of silver in the tissues by the occurrence of a gray discoloration of the skin takes some time, but the actual deposition of the metal in the liver, bone, medulla, kidneys, and spleen commences very much sooner, producing what has been called *latent argyria*, during which there is no discoloration, though

the health is affected, as experiments on animals show.

When it is considered that a silver tracheotomy tube weighs from 10 to 16 grammes, and that, if only half of it is dissolved, from 5 to 8 grammes are absorbed into the tissues, we must admit that all the conditions are present for the production of argyria. Of course, a certain part is expectorated, but by far the larger part is absorbed, at all events, as soon as the mucous membrane of the air passages has become inflamed. If we look upon argyria as a grave and dangerous affection, as it is considered by the majority of physicians, the conclusion is forced upon us that the use of such a comparatively easy soluble metal as silver for the construction of tracheotomy tubes is fraught with danger to life. Again, the danger of an irritant action of the dissolved silver on so delicate a tissue as the mucous membrane of the air passages, setting up a catarrhal condition, should not be lost sight of.

There is also another circumstance that must be taken into account in estimating the sources of danger. If the patient or his attendants are so negligent that the tube is not cleaned and examined as to its perfect condition, the destructive action will go on until a time comes when, as in the case related above, it will have become thin, and only threads and films of metal remain—a condition that renders the patient's life most precarious, as there is always grave danger of his being choked or injured by fragments broken off. That there is a possibility of this happening cannot be doubted after the case mentioned.

Regarding the second question — of what material the tube should be constructed in order that it may remain for a long time in the trachea without danger—for patients in good circumstances the most suitable materials are gold, platinum, or rock crystal. For those in the humbler classes, porcelain, glass, or even ivory might be used. These substances are, it is true, to some extent acted upon by the fluids of the body, the silica of glass being even soluble in traces in distilled water, but not in any appreciable quantity; besides which silica is one of the substances which is contained in the body, especially in the case of vegetable eaters, and is not hurtful to it. Gold and platinum may doubtless, after a long time, be to some extent dissolved, especially by the sulphuretted hydrogen, that if the disinfection is not perfect, is sure to exist.—*Lancet*, April 28, 1888.

CARDIAC AND ARTERIAL AFFECTIONS AFTER TYPHOID FEVER.

The cardiac and arterial lesions found at the autopsies on typhoid subjects, says M. L. H. Petit, though they may have caused no symptoms during life, show that they do arise in the course of the disease, and render it impossible for the physician to ignore the relation between the cause and the effects; though the period of latency that separates typhoid fever from the cardiac affection masks to some extent this relation. Examination of these cardiac lesions shows that the orifices of the heart are rarely altered, and that the lesions especially affect the muscular structure of the heart, the right heart being almost sound in all cases.

The aorta and the large branches of the aorta show more evident alterations; the aorta is usually dilated, its external surface injected, its internal surface only a little affected, though often the seat of slightly projecting and irregularly distributed milky plaques.

The microscope shows that the muscular alterations are situated especially near the apex and the columnæ of the mitral valve, an important fact by reason of the effect on the functionation of the valves. The muscular fibre undergoes either granulo-fatty degeneration, or atrophy caused by compression resulting from the acute proliferation of the interstitial tissue. The arteries are attacked in all their parts by a sort of vegetation that causes obliteration

of the cardiac arterioles. The most important lesion seems to exist in the muscular fibres; it consists of an active proliferation of the embryonal cells and of a sort of acute œdema that dissociates the muscular elements by creating shall lacunæ that give a sponge-like appearance. The hyperplasia of the connective tissue, characterized by the afflux of migrating cells and by proliferation in the place of the fixed cells of the connective tissue, contributes to the strangulation of the muscular elements, which promptly undergo simple atrophy or granulo-fatty degeneration.

These angio-cardiac lesions may be recognized for a longer or shorter time after an attack of typhoid fever, for months, or even for years, during which time the lesions organize and modify little by little the functionation of the circulatory apparatus by changing the normal state to a more or less pronounced pathological one.

From a clinical point of view the cardio-vascular manifestations of typhoid fever are seen in two different aspects; sometimes there is prompt generalization of the lesions, rapid enfeeblement of the heart or sudden arrest of it, giving rise to complications that are almost surely fatal; again, the cardiac or arterial alterations come on slowly, and in a shorter or longer time cause cardiopathies of variable intensity.

The first of these forms has been known for a long time. The second, to which attention was first specially called by MM. Landouzy and Siredy, comprehends the cardio-vascular affections that, coming on slowing and silently, and without marked symptoms in the course of typhoid, pass to the chronic state and make patients that are really cured of the typhoid fever veritable angio-cardiacs. The beginning is slow, and the cardiac affection is manifested only when the work of sclerosis is already advanced in the arteries or between the fasciæ of the myocardium. By reason of of the integrity of the orifices up to this time one cannot rely upon the evidence furnished by auscultation. It is therefore necessary to observe with care typhoid patients during the whole course of the disease, and during all the convalescence. To minute auscultation must be added careful examination of the pulse, examination at the apex to detect the least tendency to hypertrophy; the slightest peripheric troubles of the circulation must be attended to, and the urine should be minutely examined both as regards quantity and quality.

The first bruits that reveal typhoid lesions are constant neither as regards their situation nor their relation with the cardiac revolution; they may be heard over the mitral or aortic orifice, over the aortic sinus, and they may vary with the patient, and present in each one differences that are marked from day to day, according to the evolution of the cardio-aortic complication.

To these phenomena must be added pallor of the face, feebleness, slight dyspnœa, retro-sternal pains with irradiations toward the intercostal spaces of the left side, and of variable intensity, from a simple stitch up to the characteristic pains of angina pectoris; in the last case hypertrophy of the heart is easily made out. The aortic pulse appears at the same time.

The diagnosis of the cardio-vascular lesions of typhoid is easier than one would think, say Landouzy and Siredy. During typhoid and its convalescence minute auscultation, and daily examination of the pulse give the diagnostic signs. According to these authors the evidences furnished by the pulse are superior to those given by the temperature.

In the treatment of the primary arteritis the physician must resort to peri-cardiac and peri-aortic revulsion, under the form of the hot iron and cauterants, and the iodide treatment with caffeine will be of great service. The knowledge of the relations between typhoid fever and such cardiac and vascular lesions as have been spoken of will be of service in prophylaxis. —*L'Union Médicale*, No. 50.

THE EYES IN CHOREA OF CHILDHOOD.

Dr. G. E. De Schweinitz, of Philadelphia, has just published in the *New York Medical Journal*, June 28, 1888, an account of the examination of the eyes of fifty cases of chorea of childhood. He draws the following conclusions:

1. The irides of choreic children quite commonly present chromatic asymmetry in shade, just as the same condition has been found in other forms of nervous disorders.

2. Slight differences in the width of the pupils may be found, but not more frequently—in fact, not as frequently—as these have been noted in perfectly healthy individuals.

3. Facial asymmetery is present in about one-half of the cases, just as this is present in cases of high refractive error, and also in individuals perfectly free from nervous disorders.

4. Hypermetropia and hypermetropic astigmatism are vastly the preponderating conditions of refraction in the eyes of choreic children, being found in about 77 per cent. of the cases, exactly as hypermetropic refraction is the preponderating condition in childhood generally, being found in 70 per cent. of the eyes of children in the elementary school years.

5. Imperfect equipoise of the eye-muscles is found in the great majority of the cases, but imperfect equipoise of the eye-muscles is very frequently present in the eyes of school children free from chorea or neuropathic tendencies.

6. Embolism, atrophy of the disc, and optic neuritis may occur during or after attacks of chorea, but appearances in the fundus oculi characteristic of the disease have not been found.

7. As Octavius Sturges remarks: "It seems certain that a fairly constant proportion of chorea is directly connected with what may be called injudicious schooling, . . . but such nice adjustment as shall prevent overstraining on the one hand and overindulgence on the other is practically unattainable." Certainly an endeavor to lessen the overstrain of the eyes should be made. Hence the refraction errors and muscular defects in these children should be carefully and fully corrected by glasses, by prisms when necessary, or even by judicious surgical interference, and thus a probable exciting element removed; just as we should perform the same service for eyes similarly afflicted in children who are not choreic; just as we should improve the hygeine, remove the anæmia, treat the disabled circulatory apparatus in children who are not choreic. Evidence, however, seems quite as lacking that hypermetropic refraction is the basal cause of chorea as it is that chorea is the cause of the hypermetropia.

SUBPERIOSTEAL REMOVAL OF HALF OF LOWER JAW; RECOVERY, WITH ALMOST ENTIRE RESTORATION OF THE BONE AND PERFECT MASTICATORY MOVEMENT.

Florence W., aged 6, was admitted to Charing Cross Hospital, on January 21, 1887, with extensive necrosis of the left half of the lower jaw. She had already been operated upon, and excision of the entire bone from the outside advised by a hospital surgeon. This the mother would not consent to; and she was placed under Mr. Bellamy's care.

On admission, the child had a most marked strumous aspect, the left side of the face being enormously swollen, the swelling extending over the temporal region. There was a sinus just in front of the external auditory meatus and one below the angle of the jaw.

On January 30, Mr. Bellamy enlarged the opening in the superior sinus, and removed the condyle, ramus, and angle, and opened up the remains of the sinus just under the angle. The periosteum was free

and loose and retained the original form of the bone in a most remarkable manner.

February 1. The discharge was profuse and very offensive, although the cavity had been drained antiseptically. On the 7th the swelling began to decrease, and the discharge was quite healthy. On the 14th a small spicula of bone was found loose and removed from near the symphysis.

The child made an uninterrupted recovery, with the exception of some slight paralysis of the orbiculares pelpabræ and oris.

Seen on April 24, 1888. The two sides of the face are nearly equal in size; there is a small cicatrix behind the angle of the jaw; and on manipulation the new jaw feels somewhat nodulated, no doubt soon to mold itself into proper form. The articulation seems to be perfect, and the movements of the jaw as free as possible. In fact, there is no deformity at all. The teeth behind the first bicuspid have gone.—*British Medical Journal.*

ANTIPYRIN IN POLYURIA AND DIABETES.

At a recent meeting of the Société de Thérapeutique de Paris, M. Huchard spoke of a case of excessive polyuria under his care, which had been benefited by antipyrin. The urine had decreased from 28 to 3 litres a day. At different times there was an increase when the drug was discontinued. At the time of the report none had been taken for several days, and there was no return of the polyuria. It is probable in this case, says Huchard, that the drug acted as a moderator of bulbo-medullar excitability. In this case also a violent attack of dyspnœa, which lasted two hours, was calmed by antipyrin. The substitution of ergot for antipyrin in this case caused an enormous increase in the urine. Bicarbonate of soda was then given with the antipyrin, and the urine rapidly decreased. The soda was at first given in doses of 2 grammes a day, and increased to 6 grammes.

In a second case, the patient passing about 10 litres a day, the urine was diminished one-half in five days. A third patient passed 800 grammes of sugar a day. In four days under antipyrin the urine fell from 12 to 3.90 litres after the administration of 6 grammes of the drug, and the sugar decreased to 71 grammes a day.

With two grammes of antipyrin Dujardin-Beaumetz obtained results parallel to those of M. Huchard. Albert Robin has seen the total disappearance of diabetes, without special régime, after the use of 4 grammes of the drug, in from 15 days to 3 weeks; but after a time the patients became albuminuric. It is known, however, that diabetics sometimes have intermittent albuminuria, and it is no cause for alarm when albumen appears temporarily in the urine of these patients.—*Le Bulletin Médical*, No. 30, 1888.

A MAN WITHOUT A LARYNX.

The Paris correspondent of the *Lancet* writes: A short time ago I read a note in a scientific journal, entitled as above, which was reproduced from the Paris *Figaro*, and which was to the following effect: At No. 22, Rue de la Banque, Paris, may be seen a man (a wine merchant) who has been living without a larynx for the last two years. In April, 1885, he consulted Dr. Fauvel, the celebrated laryngologist, on account of severe dyspnœa, to which he had been subject for some time. Dr. Fauvel diagnosed an osteosis with œdema and ulceration of the larynx, and proposed to perform tracheotomy on the man. This he refused to submit to, and consulted other physicians; but, as he was getting worse, and the danger of suffocation became imminent, he decided upon the operation. Tracheotomy was practiced on February 13, 1886; but as this did not afford much relief, Dr. Péan, on February 27—that is, a fortnight afterward—per-

formed ablation of the larynx This was done at the hospital, and on March 19 he was able to eat, and left the hospital cured and apparently in good health. I saw the man in his shop (a public-house) a short time ago, serving his customers as if nothing had happened to him. He is thirty-seven years of age, but looks about fifty. At my request he very willingly showed me his throat, where I perceived the cannula introduced by Drs. Péan and Fauvel, and whenever he had to answer my questions he closed the orifice of the cannula with his finger, and although his voice was not very audible, yet he spoke distinctly. He has not changed his habits, but eats and drinks as much as he ever did. As far as I could learn, the man had no antecedents of syphilis or tubercolosis, but had been frequently treated for "colds on the chest."

LEPROSY IN RUSSIA.

The latest advices to hand point to the fact that in Russia, chiefly in the Baltic provinces, leprosy is increasing. In Lithuania, for example, there are to be found from two hundred and fifty to three hundred lepers, and in the district of Dorpat, it is said, the proportion of lepers is about one to a hundred of the population. There are reasons, however, for believing that the latter estimate is somewhat of an exaggeration. The inhabitants of these districts are naturally exhibiting some uneasiness in relation to the increase of this terrible disease in their midst, and have petitioned the government to appoint a commission for the purpose of inquiring into the facts, with a view to the adoption of some means for the arresting the propagation of the malady. It has just been decided to open a hospital at Riga with forty beds, for lepers, and this is undoubtedly a step in the right direction, though perhaps a small beginning. In Norway, where leprosy is also an epidemic, ample hospital accommodation exists for the treatment and isolation of the disease. Three leper hospitals are maintained by the State; one at Christiania in the south, another at Bergen in the west, and a third at Trondhiem in the north, into which the patients are admitted from all parts of the country. At any time during the course of the treatment the patients are free to return to their homes, in accordance with the belief in Norway, established by law, that the disease is not contagious.—*Medical Press and Circular.*

BACTERIOLOGICAL EXAMINATION OF THE UTERUS AFTER PHYSIOLOGICAL PARTURITION.

Drs. Straus and Sanchez, Toledo, have made a number of researches and experiments on the females of certain animals with regard to the state of the uterine cavity after normal parturition. The first part of these researches consisted in bacteriological examinations of the uterine cavity and of the liquid it contained at different periods after parturition. The experiments were made on rabbits, guinea-pigs, and rats and mice. The animals were killed within from three hours to three days after parturition, and immediately after death the uterus and the Fallopian tubes were opened with all precautions.

The experiments showed that in these animals, after normal parturition, neither the uterine wall nor the uterine secretions contained any micro-organisms at all; and that the numerous germs that are found in the vagina do not penetrate into the uterus, or if they do are immediately destroyed. These experimental facts are analogous to those found by Döderlein in experiments on the lochia of the parturient woman: that the lochia of women having no fever do not contain bacteria, and do not produce toxic effects when inoculated on animals; while the lochia of women that have fever contain microbes, and do cause toxic symptoms when inoculated on animals.

Attempts were made also to inoculate these animals with pure cultures of different pathogenic microbes (bacillus anthracis,

vibrion septicus, staphylococcus pyogenes aureus, and bacillus of chicken cholera). The last microbe was the only one that had any effect. There is thus seen to be a strange contrast between the resistance of the animal uterus and the vulnerability of the human uterus to pathogenic microbes.—*Gazette de Gynécologie*, May 15, 1888.

RECENT OBSERVATIONS ON TUBERCULOSIS.

The stimulus given by Koch's discovery of the tubercle bacillus to a closer clinical observation of tubercular affections has resulted in a clearer understanding of some of the exceptional manifestations of tubercular disease. One of the most interesting additions to our knowledge in this respect is the proof, which is being continually strengthened by fresh observation, that the so-called dissection anatomical, or *post mortem* tubercle is really a manifestation of local tuberculosis, acquired by inoculation. Finger has lately published a case in which a man who had tubercular disease had suffered from five of these dissection warts which preceded the development of general tuberculosis, and in which microscopical examination showed the tubercle bacillus. Steinthal (*Monat. f. Prakt. Derm.*, 1888, p. 437) relates the case of a woman who was inoculated with tubercle on the skin of the hand through washing the clothes of her phthisical husband. Meyer (*Ibid*, p. 283) has related a case in which a child was infected with local tuberculosis of the genital organs by the wound made in the rite of circumcision being sucked by the operator, who was the victim of tubercular disease; and at a recent meeting of the Medical Society at Copenhagen, Dr. Salomon, sen., stated that he also had observed cases of tubercular infection produced in the same way by ritual circumcisers who practiced suction. On account of the dangers of the transmission of syphilis and tubercle in circumcision, Dr. Salomon, sen., advocated that the rite should be performed under precautions laid down by the authorities.—*British Medical Journal.*

TARSECTOMY FOR SENILE ECTROPION.

At the recent meeting of the Société Française d'Ophthalmologie, M. Boucheron, of Paris, described under the name "tarsectomy" an operation for senile ectropion in the early stage. He practices excision of the tarsal cartilage, on the conjunctival side, when the ectropion is situated on the lower lid. The tarsectomy is partial when the ectropion is partial; and it is almost total when the ectropion is complete—that is to say, when the cartilage is totally luxated, and when the contracture of the orbicularis palpebrarum, in occlusion of the lids, maintains the tarsal luxation. Ablation of the tarsal cartilage, save the band one mm. broad close to the lids, pemits the orbicular muscle to go up to the brows, and the re-application of the lid to the eye.

The *redressement* of the lid is immediate. The permanence of the *redressement* is finally maintained by the formation of a small cicatricial conjunctival band substituted for the removed portion of the tarsal cartilage. The cicatrix, however, is of little importance, because the conjunctiva of the cul-de-sac unites with the ciliary border of the lid, either by first intention, or very rapidly by second intention.

There is no consecutive ectropion. A dozen operations have been made by Boucheron with perfectly satisfactory results.

While Boucheron does not insist so much upon the absolute novelty of the operation, he particularly insists on the facility, the security, and the value of it as he practices it: Application of Desmarres' or Snellen's forceps; incision along the orbital border of the tarsal cartilage; dissection of the cartilage; section and ablation of the cartilage one mm. from the free border; for partial ectropion, extraction in the

same manner of the luxated part of the cartilage; compress dressings over the closed lids.—*Progrès Médical*, No. 19, 1888.

ON THE TREATMENT OF SEBACEOUS TUMORS.

Many people, the subjects of congenital sebaceous tumors and "wens," object to having them removed, on the score that the remedy is worse than the disease, and the after-consequences may be serious.

The following is the method I have adopted in such cases, and with marked success. With a cataract knife (Graefe's) puncture the cyst, and gently squeeze out the contents; then introduce a very small piece of nitrate of silver. On the following day, by means of a pair of forceps, the capsule of the cyst can be withdrawn, just like the shell of a bean, without any portion being left adherent. In no case has there ever been any return of the growth or any ill effects.

The method, if tried, will be found to have many advantages apart from its simplicity and thoroughness.—*British Medical Journal.*

BOOK REVIEWS AND NOTICES.

THE LANGUAGE OF MEDICINE. A manual giving the origin, etymology, pronunciation, and meaning of the technical terms found in medical literature. By F. R. CAMPBELL, A. M., M. D. Pp. viii and 318. New York: D. Appleton & Co. 1888. Chicago: A. C. McClurg & Co.

The author says that "the object of this work is to provide the medical student with a suitable means of acquiring the vocabulary of his science." This is a commendable object, and both the book and the subject deserve more attention than the latter has received during recent years. The author claims that too little attention is given in medical education to making students men of general and linguistic culture, that the tendency of the profession is away from those lines which made the physicians of former generations scholarly men rather than scholars, and he deplores the fact. He says that too many physicians abbreviate the Latin of their prescriptions simply to conceal their ignorance.

Part I, treats of the origin of the language of medicine, *i. e.*, the words which are peculiar to medical language. Part II, considers the Latin element in the language. Part III, the Greek, and Part IV, the elements derived from modern languages.

It is not claimed that the book is a complete medical lexicon, and there has been no attempt to make it such. The principal words, however, from both the Greek and Latin are given, together with prefixes, suffixes, prepositions, and clearly stated rules for their combination, inflection, and correct use in prescription writing. An ample number of examples are furnished for illustration, and exercises are also given for those who need them. The chapter containing a list of the most commonly mispronounced words will prove profitable reading for many doctors.

Those physicians who have the training of the colleges of this country, will find ample material in the book to verify the quotation with which this book notice begins. But whether those wholly untrained in Greek and Latin will fare so well can be determined only by a trial. Probably, however, they will.

The author's style is both good and attractive, and the publisher's work is exceptionally well done. The book will be found convenient for reference, suitable for a text-book, and profitable reading for all classes of medical practitioners. If, as the author suggests, the work should, perhaps, have been done by a professor of language, the medical profession is to be congratulated that he did not wait for any such desideratum. E. W.

MEDICAL PUBLICATIONS, HARVARD MEDICAL SCHOOL. J. COLLINS WARREN, chairman of the committee on publication. 1887.

There are some 200 pages in this book, which is composed of articles contributed by the medical corps of the school, and represent only a portion of the original work of the year 1887. The articles are reports of work in experimental anatomy, physiology, pathology, and surgery, and a consideration of the artificial feeding of infants. The papers are excellent, and represent very creditable work; but the great variety in their nature precludes special mention in this connection.

FOURTEENTH ANNUAL REPORT OF THE Secretary of the State Board of health of Michigan, for the fiscal year ending September, 30, 1886. Lansing, Mich.: Thorp & Godfrey. 1888.

The first part of this report, xlix pages, contains the official records of the meetings of the board. In the second part, of 324 pages, the papers which are of

greatest interest to the profession are the now celebrated reports of Professor Vaughn, upon the presence of tyrotoxicon in poisonous ice cream; and that of Dr. Baker, secretary of the board, upon the causation of pneumonia. The work which the secretary is doing in observations and reports upon meteorological conditions, and upon the prevalence of communicable disease in Michigan is highly creditable.

A MANUAL OF PHYSIOLOGY. A Text-book for students of medicine. By GERALD F. YEO, M. D., F. R. C. S. Third American, from the second English, edition. Pp. xxi and 758. Philadelphia: P. Blakiston, Son & Co. 1888.

In the preparation of this edition the changes rendered necessary by recent research have been made, together with a correction of inaccuracies.

The favor with which this treatise has been received, shows very clearly how successful the author has been in his attempt to write a book for the use of medical students. No one can know what the relative value of the many facts of physiological science is to such students, as well as a practical medical man does. In the short time allotted by even our best colleges for the work it is impossible to make of the average medical student, both a good physician and a good physiologist. The author fully appreciates this fact, and it is along this line that the merit of the work is most conspicuous; but there are other merits in the volume. The style is clear and agreeable. The drawing of histological structures is exceptionally true, and those of Dr. Bevan Lewis of the spinal cord and brain of monkeys can only be described as beautiful in their delicacy and accuracy. E. W.

A COMPEND OF HUMAN PHYSIOLOGY. Especially adapted for the use of medical students. By ALBERT P. BRUBAKER, A. M., M. D. Fourth edition, revised and enlarged. Pp. viii and 174. Philadelphia: P. Blakiston, Son & Co. 1888.

This is No. 4, in the "Quiz Compend" series issued by its publishers. It is especially intended for the use of students preparing for examination. For this purpose it is difficult to say in what manner this compend can be improved. It deserves its popularity.

THE RECTUM AND ANUS. THEIR DISEASES and Treatment. By CHARLES B. BALL, F. R. C. S. I., Dublin. With 54 illustrations, and colored plates. 12mo. Pp. 410. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co. 1888.

Of the numerous manuals lately written upon this subject, this book is one of the best.

Each subject is concisely and systematically treated; its literature well presented and deductions carefully drawn. The chapter upon maiformations is comprehensive, and is interesting reading.

The author's descriptions of operations aided by drawings are easily understood, though the relative advantage of one method of procedure over another for the relief of the same condition, is not greatly emphasized.

The lithographic plates show rather too much color to be faithful representations. H. H. F.

A REFERENCE HANDBOOK OF THE MEDICAL Sciences. Embracing the entire range of scientific and practical medicine and allied science, by various writers. Vol. VI, Pra to Tep. 778 pages. Illustrated by chromo-lithographs and wood engravings. Edited by ALBERT H. BUCK, M. D. Supplied to subscribers only. New York: William Wood & Co. Chicago: W. T. Keener.

This sixth volume of the *Reference Handbook* sustains the character of the five volumes which have preceded it. It is comprehensive in its scope, and the subjects are well presented.

It is printed with clear type on good paper.

When completed the set will constitute a small library in itself.

THE TREATMENT OF HÆMORRHOIDS BY injections of carbolic acid and other substances. By SILAS T. YOUNT, M. D. Second edition. Duodecimo, pp. 102. Echo Music Co., La Fayette, Indiana. 1888.

A valid excuse for the existence of this volume is hardly apparent, as it contains nothing at all new (except the description of a speculum invented by the author), and the book is too small to treat thoroughly the subjects upon which it touches. The work abounds in grammatical errors.

SURGERY—ITS THEORY AND PRACTICE. By WM. JOHNSON WALSHAM, F. R. C. S. With 236 illustrations. 8vo. Pp. ix and 655. Philadelphia: Blakiston, Son & Co. Chicago: W. T. Keener. 1887.

Individual points of excellence are likely to be few as distinguishing any one *Manual of Surgery*—intended for students' use—from another on the same subject, as such works are almost of necessity compiled and extracted from other and more extensive treatises; the chief value of the manual being that it presents the subject in condensed form.

The volume under consideration is more nearly complete than most of its kind; is systematic and clearly written. The illustrations are numerous, some of them new, and a few of them good.

H. H. F.

ACCIDENTS AND EMERGENCIES. A Manual of the treatment of surgical and other injuries, in the absence of a physician. By CHARLES W. DULLES, M. D. Third edition, illustrated. Duodecimo. Pp. viii and 119. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener.

This little book is full of practical suggestions, so worded as to be easily understood and acted upon by any person of average common sense and discretion in a way likely to benefit the patient, and in many cases to save life.

The volume should find a place in every household, especially if situated at a distance from medical aid. The fact that it has reached its third edition is in itself a recommendation. H. H. F.

MISCELLANY.

XANTHELASMA OE THE HEART.— At the VII Congress of Internal Medicine, held at Wiesbaden in April, Leube showed a very rare pathological specimen —a heart affected by xanthelasma. The diagnosis was made during life of mitral insufficiency due to xanthelasma of the endocardium, and the autopsy confirmed the diagonsis.

DANGER FROM THE SANDWICH ISLANDS. —The Consul-General at Honolulu reports that many lepers leave the Sandwich Islands as soon as the disease appears, the greater number coming to the United States, in order to prevent being banished to the island of Molokai.

TREATMENT OF MEDICAL ERYSIPELAS. —For twenty years Jaccoul has used wine of quinquina in large doses (from 250 to 450 grammes a day) and milk diet in facial erysipelas, and has had most satisfactory results from it.—*Journal de Méd. de Paris*, May 20, 1888.

MEDICAL GRADUATES AND THE VIRGINIA EXAMINING BOARD. — It is said that 34 graduates of the College of Physicians and Surgeons of Baltimore have been examined by the Virginia Board of Medical Examiners since January 1, 1885, and that 10 of these failed to pass the examinations.

LITHIATED PILLS FOR DIABETES.—P. Vigier recommends the following formula for pills for diabetes :

Carbonate of lithia.....10 centig.
Arseniate of soda .....3 millig.
Extract of gentian.....5 centig.

For one pill. Take one morning and evening, and continue after the sugar has disappeared from the urine.

WASH FOR SYPHILITIC PSORIASIS. —
Bichloride of mercury.....1 gram me.
Muriate of ammonia.....1 "

Dissolve in two litres of tepid water, and wash the affected parts, in cases of plantar and palmar syphilitic psoriasis, night and morning.—*L'Union Médicale*, May 26, 1888.

A monument to Cohnheim was unveiled in Leipzig on June 3.

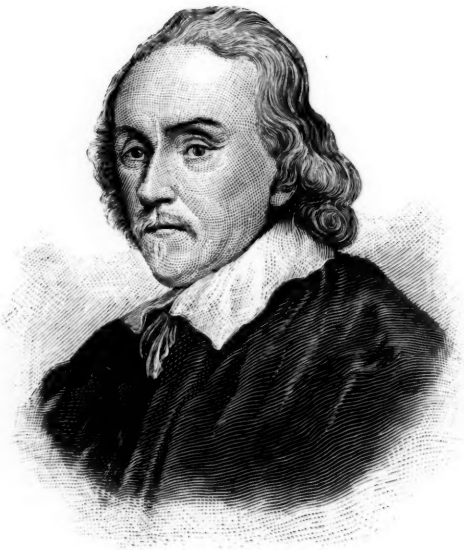
ANNOUNCEMENTS.

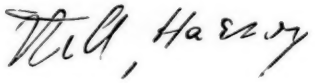
THE AMERICAN OTOLOGICAL SOCIETY will hold its twenty-first annual meeting on the 17th of July, at the Pequot House, New London, Conn.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY will hold its twenty-fourth annual meeting at the Pequot House, New London, July 18 and 19.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its sixth annual meeting at Cincinnati, Ohio, on September, 12, 13, and 14.

The fifty-sixth annual meeting of the British Medical Association will be held at Glasgow, on August 7 and three following days. The President-elect is Professor W. T. Gairdner, M. D., LL. D. The Address in Medicine will be delivered by Dr. Clifford Allbutt, of Leeds; the Address in Surgery by Sir G. H. B. Macleod, M. D.; and the Address in Physiology by Dr. J. G. M'Kendrick. An address on "Recent Investigations in Surgery" will be given by Dr. W. Macewen.





W. HARVEY, M. D.

DISCOVERER OF THE CIRCULATION OF THE BLOOD.

"The circling streams, once thought but pools of blood,
(Whether life's fuel, or the body's food)
From dark oblivion Harvey's name shall save."